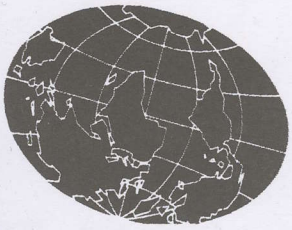
Bob Cooper's

MARCH 15 2007

151

SatFACTS

MONTHLY



Reporting on "The World" of satellite television in the Pacific and Asia

IN THIS ISSUE

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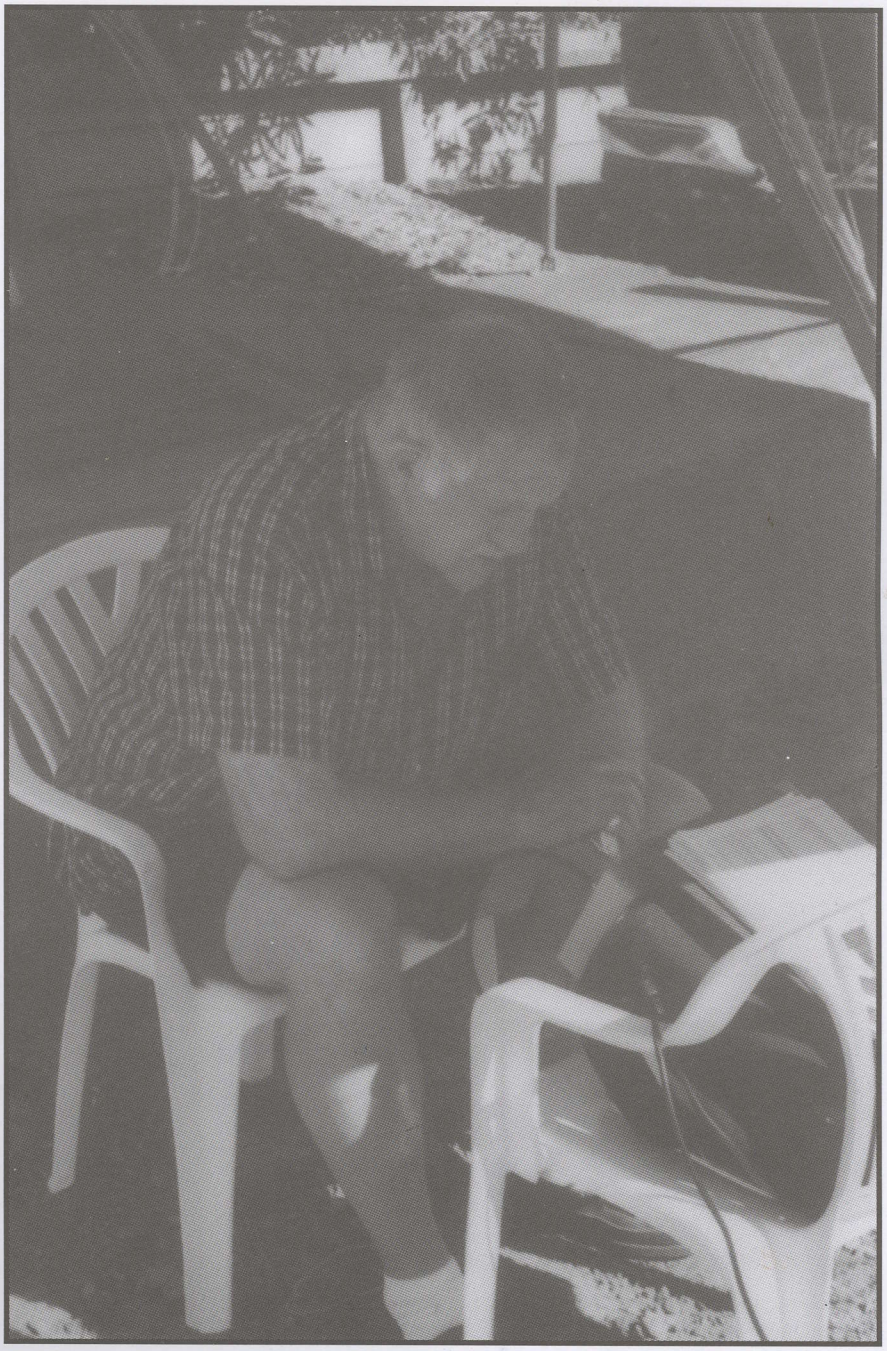

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SatFACTS MONTHLY

ISSN 1174-0779

is published 12 times each year (on or about the 15th of each month) by Far North Cablevision, Ltd. This publication is dedicated to the premise that as we enter the 21st century, ancient 20th century notions concerning borders and boundaries no longer define a person's horizon. In the air, all around you, are microwave signals carrying messages of entertainment, information and education. These messages are available to anyone willing to install appropriate receiving equipment and, where applicable, pay a monthly or annual fee to receive the content of these messages in the privacy of their own home. Welcome to the 21st century - a world without borders, a world without boundaries.

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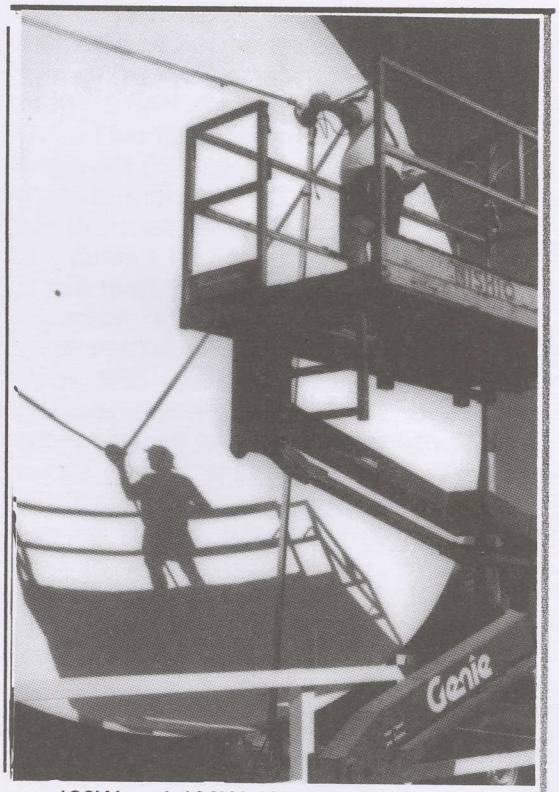
Now year thirteen!

March 15, 2007

Antennas

From the day when C-band started, back in 1978 or so, until today, there have been a number of bureaucratic intrusions on the size of dish one can have in their yard. The original North American C-Band antennas were often 4m in size, although as the service developed through the early 1980s the electronics improved enough to allow smaller dishes - down to 2m and below - to provide satisfactory reception on what was at the time several hundred analogue services.

But local government boards, through zoning and building permit procedures, intervened and by 1983 any satellite dish that could be considered a "visual object" (as in, capable of being "seen" by neighbours) was increasingly difficult to install without an expensive, long-term legal battle.



I have a few (14 to be precise) dishes on my property, the largest is 7.2 in size which is certainly not your average structure. I am fortunate, for the moment, to be located so as not to have neighbours or other householders who are in a position (legal or otherwise) to complain about my passion for steel and fibreglass structures dotted like mushrooms on steroids throughout my property.

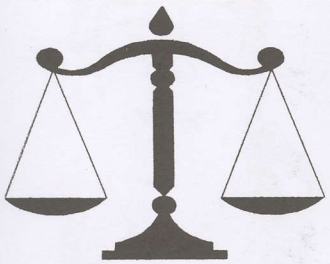
The 7.2 metre (right) was built in New Zealand perhaps 25 years ago, back when FTA reception from AFRTS (today AFN) was possible and more than a hundred motels in this country signed on to have "American TV" in their rooms. When we located this antenna ($1,200) it was rusted, decrepit, beyond reuse. John Taylor (in photo), Ben Krooneman and others slaved with it for months to refurbish every part down to the last bolt. Then it was reassembled laying on its back and with a crane lifted onto a totally redesigned and rebuilt az-el mounting system. Our goal was to "test" the possibility of USA reception, on sidelobes of sidelobes, from the American satellites between 120W and 139W. We spent days trying to make this work, ended up with measurable but not usable signals from the USA services of Chicago Super Station WGN, WTBS (Ted Turner's station) and a handful of others. We gave up.

During January American TVRO pioneer Doug Dehnert arrived in Coopers Beach for a five week stay and instantly he was challenged by the dormant dish structure. Dehnert during the period 1987 through 1995 installed twenty-eight 11, 13 and 15 metre dish systems from Korea to Guam to Johnston Island to The Marshalls under contract with various branches of the US military. Nobody in the world, *nobody*, gets more out of a dish than Dehnert. He added between 2 and 3 dB to our WGN and WTBS signals, putting us right on the edge of sparklie threshold but not quite good enough for real reception - even flawed reception. The point of all of this is simplistic: In our case a 13m dish to "watch American TV live;" not likely anytime soon. But doable none the less, as Dehnert proved by providing the American ABC network live feeds from California boresighted C-Band beams to a TV station in Guam, or HBO and CNN live, long before Asia had its own satellites, to US Airforce bases in Korea.

Time has made large antennas a naughty word, in turn restricting what could be done if the bureaucrats who view such structures as if they were an invasion from interstellar bad guys simply forgot their passion for what a person can be "allowed" to do in their own backyard. You might be surprised that really good quality C and Ku band large antennas still exist, as were we (page 10).

-On the cover-

One of the best in the world: Ex-USS Maspro's Doug Dehnert sitting under our 7.2m dish digging for the ultra weak North America-direct transponders (p. 10).



LETTERS

Wondering

"We still are planning to go to Atlanta and wonder if Sir Arthur is still attending? Regarding the Toroidal dish series - my Hills 85cm is set to receive 5 satellites (B3 through PAS-2); have not tried to extend it further but I would say it is possible judging by the signal levels prior to the departure of B1. I sat in on a Hills' presentation of the FreeView platform on 14 February in New Plymouth. The word from that is Sky expects to activate horizontal sometime in May. This would certainly help FreeView installers hold costs down. The Hills receiver, awaiting Consortium approval at the time of the presentation and the model shown had no company logo visible, is a very physically small affair - about the size of two DVDs side by side in their cases. There were no pamphlets available and photos were not allowed. Even the FreeView logo was not allowed to be copied! In addition to being small, there were only 2 SCART connectors with a satellite in (no loop through) and a 12V DC power connector; no modulated RF output. The 12V powering would make these useful for motor homes. The presenter said the format would be MHEG4, specifically not MHEG5 and I could not understand what he really intended to convey with this description. He also admitted currently available receivers would function for program reception but would not do the new electronic program guide and lose the provision for interactivity. If I understood correctly, this receiver will allow interactivity but I could not see how they intend to do this without a suitable telephone jack socket."

Chris Clarke, Manaia, New Zealand

There may be some mis-information here Chris - whether from you or from the Hills' presenter. If anyone does not include MHEG5, does not offer EPG, they should NEVER obtain Consortium certification/approval. It is just another FTA box. End of story. Hills can do better than this - their engineering and public relations staffs need an opportunity to be recognised.

PROGRAMMER PROGRAMMING PROMOTION UPDATE

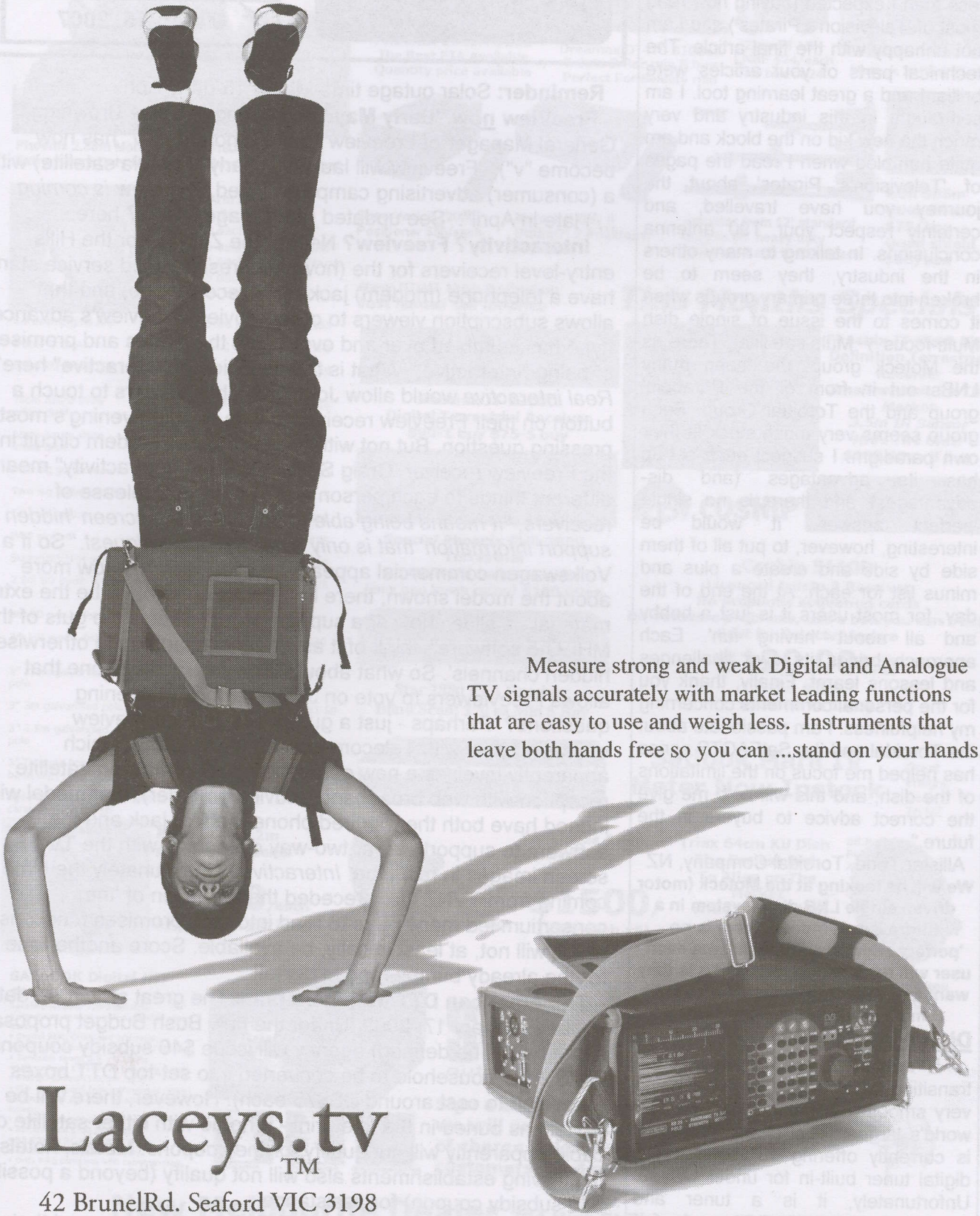
MARCH 15, 2007

Mid-February internal memo at TVNZ: "The (FreeView launch) project is about to close. All of the questions and comments in recent weeks confirm our thoughts not to try to provide DETAILED explanation/ process about the changes/retuning etc. to 'the average viewer'. There are too many side issues. I met one by phone recently, apparently an elderly lady out the back of Pirongia, and she was adamant that she and her hubby 'will have none of this digital business'. She said they were now too old for it and, 'it can electronically eavesdrop on us.' During the conversation I had to reveal, to her absolute horror, that her local installer had put in digital FTA TV to improve reception whether she likes it or not. No doubt this morning she made the long trip out to the farmhouse in her hills to either retune her STB - or deinstall it! The choice was digital or lousy analogue! The rearranged channel order for TVOne, TV2, TV3, MTS, TV3 and C4, and the EPG, is now set up ready for FreeView's launch in *April* (Ed's note: see page 4 here). TV3 and C4 will not be seen until FreeView launches. And although we have transferred the test channels Deustche Welle, CCTV9 and Bloomberg to D1, they may not survive beyond FreeView's launch. Our testing and trial will soon be over and we will hand over the capacity to FreeView from which point it will be up to the participating broadcasters to decide content."

Kordia's participation. Ex-BCL group, now known as Kordia (tm), is promising to invest NZ$35m in the infrastructure required to provide digital *terrestrial* television (DTT) to as estimated 75% of the New Zealand viewers. Kordia is using signed contracts from TVNZ and TVWorks (TV3, C4) as the basis to upgrade their national terrestrial microwave and fibre network to digital in support of the Freeview terrestrial (DTT) service. *"Launch, anticipated for early* (February?) *2008," will see the network capable of feeding digital inputs to newly installed digital terrestrial transmitters, initially at ten sites, later to expand throughout New Zealand."* For the 25% of the population that will not be served by DTT, Kordia has leased D1 space which in turn it sub-leases to TVNZ, TVWorks for satellite service.

The consortium now owns Freeview - the trademark. A sum of money (5 digits but under $50,000) changed hands over two beers in an Auckland cafeteria and with a signature to several sets of legal agreements (including a non-disclosure 'secrecy' pact), the original ownership of the FreeView trademark has been transferred to the Freeview consortium. Think of those folks who jumped into the Internet/web 'naming rights' game in the mid 90s, reserving such trade names as 'Coke', which they would later sell to the obvious owner and you have the image here! The seller promptly went out and purchased a new Bayliner sport boat - the first person to actually make money on 'Freeview'! (And possibly the last for quite some time.) Oh yes, the seller likes fine wine and cray (lobster) for lunch. *So did we!*

Smaller, Lighter, Unaohm



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UNAOHM

Since 1935

All about having fun

"Wanted to thank you for taking the time to test the Toroidal (90) antenna and write the two-part series (SF#149, 150). Your factual reporting is nothing less than I expected (having now read most of 'Television's Pirates') and I am not unhappy with the final article. The technical parts of your articles were brilliant and a great learning tool. I am self-taught in this industry and very much the new kid on the block and am quite humbled when I read the pages of 'Television's Pirates' about the journey you have travelled, and certainly respect your T90 antenna conclusions. In talking to many others in the industry, they seem to be broken into three primary groups when it comes to the issue of single dish Multi-focus / Multi-satellite. There is the Moteck group, the 'hang many LNBs out in front of the Parabola' group and the Toroidal Group. Each group seems very much stuck in their own paradigm. I suspect each set-up has its advantages (and dis-advantages) and there is no single 'perfect answer'. It would be interesting, however, to put all of them side by side and create a plus and minus list for each. At the end of the day, for most users it is just a hobby and all about 'having fun'. Each approach brings its own challenges and lessons learnt. Finally, thank you for the personal comments concerning my helpfulness. I am passionate about the Toroidal and the SatFACTS series has helped me focus on the limitations of the dish, and this will help me give the correct advice to buyers in the future."

Allister Todd, Toroidal Company, NZ

We will be looking at the Moteck (motor driven single LNB dish) system in a future issue. Indeed, there is no 'perfect answer' and that means each user will have to sort out what it is they want and expect from their dish before making a purchase decision.

Digital that is not?

"I wanted to assure you that the transition to all-digital is not running very smoothly in the USA either. The world's largest retail chain, Wal-Mart, is currently offering 13" sets with a digital tuner built-in for under US$80. Unfortunately, it is a tuner and requires a digital monitor screen fed through back of set RCA jacks. The public is flocking to purchase these cheap models in total ignorance."

Curtis in Illinois

HARDWARE EQUIPMENT PARTS UPDATE

March 15, 2007

Reminder: Solar outage time March 15-early April.

FreeView now "Early May." According to Steve Browning, General Manager of Freeview Limited (note the "V" has now become "v"), "Freeview will launch in early May (via satellite) with a (consumer) advertising campaign (titled '*Freeview is coming ,,,*') late in April". See updated report pages 13, 27 here.

Interactivity? Freeview? Neither the Zinwell nor the Hills entry-level receivers for the (now) May rescheduled service start have a telephone (modem) jack. SKY receivers do, and that allows subscription viewers to order movies. Freeview's advance hype has stumbled over and over again the glories and promise of being "interactive." What is the definition of "interactive" here? *Real interactive* would allow John Campbell viewers to touch a button on their Freeview receiver to vote on that evening's most pressing question. But not without a telephone modem circuit in the Freeview receiver. Craig Sutton believes "interactivity" means different things to each person and in this initial release of receivers, "*It means being able to call up on the screen 'hidden support information' that is only available upon request.*" So if a Volkswagen commercial appears and you wish to know more about the model shown, there in the data stream will be the extra material - a slide show or a support video. That is the guts of the MHEG-5 software - think of it as 'channel changing to otherwise hidden channels'. So what about REAL interactvity - one that allows Freeviewers to vote on John Campbell's evening questions? Perhaps - just a guess - when the Freeview marketing deal with Telecom kicks in (early 2008), which apparently involves a new generation STB combining satellite reception with web broadband (movies on order), that model will indeed have both the required phone modem jack and the software to support viewer two-way dialoguing with the TV screen images in real time. *Interactive?* Unfortunately the hype coming from TVNZ that preceded the formation of 'the consortium led many of us to read into their promises functions which will not, at least initially, be available. Score another one for the already bumpy road to digital!

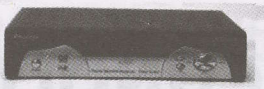
The American DTT transition plan. The great switch-off date will be February 17, 2009. Under the new Bush Budget proposal, some (yet to be defined) agency will issue $40 subsidy coupons, up to 2 per household to be converted into set-top DTT boxes (expected to cost around US$75 each). However, there will be limitations buried in the fine print - a home with either satellite or cable apparently will not qualify for the coupons. Motels, hotels, multi-living establishments also will not qualify (beyond a possible $40 subsidy coupon) for assistance.

Pacific Antennas (Australia) Ltd. is closing down and their stock full page advertisement has been reduced to a quarter page announcing a going out of business sale appearing on page 9 here. The choices for mesh C-band antennas (up to 4.3m in size) just got smaller.

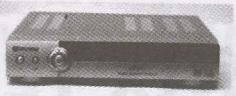
Phoenix Technology Group

Satellite Equipment & Accessories One Stop Supermarket

Phoenix 2.35m Motorized Extra Heavy Duty Mesh — **$180 each Buy 10 get one Free!**



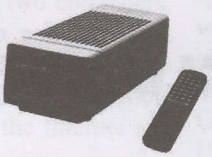
Phoenix 2800A $100
The Best FTA Available
Quantity price available



Dreamax DT470 $100ea
Irdeto 2 Rec min 5 buy
Perfect For Selectv min

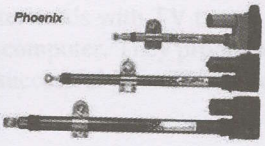
Zinwell 15K LNBF $24/each for box of 24

Moteck 2100 $95ea

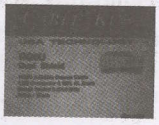


SuperJack EZ2000 Positioner $50/each

Moteck V Box II DiSEqC1.2 Positioner $65/each



Actuator from 12' standard duty to 36' heavy duty
From $35/each to $220/each

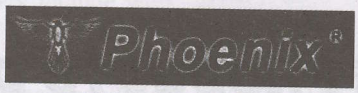


RG6 305m
Dual shield $75/box
Quad shield $85/box

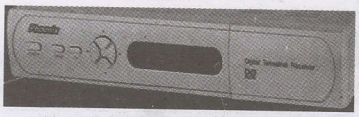
Folding Arm Dish best dish for caravan &
35cm $80 each "Mobile Kit"
64cm $25 each " Wide Beam"
78cm $44 each ***Back in Stock***
88cm $55 each
North Elev Bracket $5 each

Caravan Digital Ant	$80	PBI C+Ku band LNBF	$65
Irdeto 2 CAM	$70	Zinwell C band LNBF	$28
65cm KU offset dish	$24	Phoenix Ku band LNBF	$18
75cm Azure shine offset dish	$30	MTI C band LNBF	$18
85cm Azure shine offset dish	$35	MTI one cable solution LNBF	$45
One leg gutter mount	$18	Satellite finder	$20
Two leg gutter mount	$22	RG6 striper	$15
Tin roof mount	$22	RG6/RG11 crimper	$20
Wall mount	$15	Angle meter	$35
Superjack H-H motor	$95	Compass High Quality	$10
2.3m SD mesh dish	$130	RG 6 Crimp Connector 100 pack	$25
3m SD mesh dish	$340	22K switch	$10
3m HD mesh dish	$380	Two way DiSEqC switch	$10
3" 2.5m galvanised pole	$30	Four way DiSEqC switch	$12
3" 3m galvanised pole	$35	Satellite 2 way splitter	$1.50
3" 3.5m galvanised pole	$40	Satellite 3 way splitter	$2
3" Triangle Pole for C band dish	$50	**Digiair Terrestrial hand held meter**	**$360**
Speaker Stand for caravan use Ku dish	$40	Star LED Easy to use Satellite Meter	$85

New HDMI High Definition
Just landed call for price



Phoenix JT-3300D
Digital Terrestrial Receiver
$90-1 buy $75-5 buy



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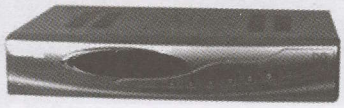
Blind Scan! $70 ea Min 5 Buy



This Months Specials

Phoenix JT-8000 High Definition Terrestrial Receiver
Smallest Unit On The Market
3.5m IR Sensor Hide The Unit!
$180.00ea 5 Buy

Coship 5110D
Licenced Irdeto 2 Receiver
No problems activating cards
No software problems, use a box you can trust!
Best for Selectv/Aurora

$120.00ea

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$135.00 ea 1 Buy

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Paralipses 1.2m prime focus panel dish

$160/each

AZ/EL mount $32/each

Last stocks of mesh dishes from USA

Paralipses 2.6m mesh dish

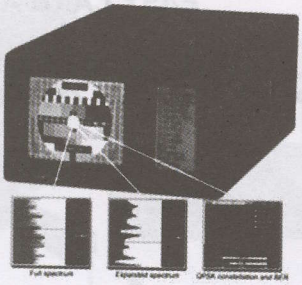
$1500/
(300/each x5)

Triax 64cm KU Dish
The Easiest Dish To Align on The Market
Wide Beam Width

$25ea

SATLOOK Digital NIT $1395

Satellite-receiver 920-2150 MHz.
- Spectrum-analyzer with expanded spectrum.
- Digital BER, QPSK and S/N-ratio.
- 4.5" B/W monitor for PAL/NTSC/SECAM.
- Tuneable sound 5.5 - 8.5 MHz.
- LNB voltage 13/18v. 22 kHz tone switch.
- DiSEqC control (1.0, 1.1, 1.2)
- KU- and C-band (normal/inverted video).
- 99 memory-positions for spectrum pictures.
- Satellite identification.
- Symbol rate 1-30 Msymb/s.
- RS 232 for PC connection
- Built in, rechargeable battery.
- Only 5 kg complete with carrying-case.



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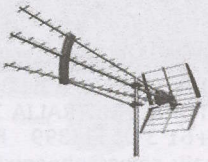

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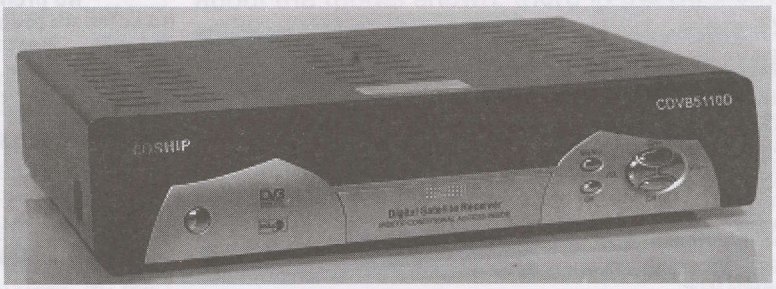

COSHIP 5110D IRDETO 2 RECEIVER

LICENCED IRDETO SOFTWARE
OVER THE AIR UPGRADING
COMES PRE-LOADED WITH PAY TV & AURORA TRANSPONDER DETAILS

AUTO LOADING & UPDATE
GLOBECAST RECOMMENDED
EASY PIN NUMBER SET UP
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Watching TV "from anywhere" - Twin hardware/software reviews

Summary:

Both products reviewed here require use of two computers. The VSTV-H1000 is for use with a desktop computer that includes a spare PCI card slot. The VSTV-U1000 uses two USB ports on a laptop family computer. Both set up a 'station' which transmits locally viewed channels onto the Internet and a 'player' that derives the signals from Internet.

Viewsat VSTV-H1000

This review is for the computer version only, please see the following review for the non-computer (stand-alone) version. Artwork and a photo describe exactly what they include with each package.

What it is

Computer PCI card, remote control, interface cable for connection your sound card, and CD-ROM based software. There are no printed manuals..

History

Two makers of consumer electronics collaborated to create this rather unique product. Viewsat is a rather well known brand in the C (and Ku band) consumer satellite business, specialising in Free-to-Air receivers. Hauppage is also rather well known for computer cards with TV tuners built-in, so you can watch TV on your computer. They produced the hardware, based on their highly successful Win-TV-GO card; this is the GO-PLUS version.

Use

Its' use and connectivity requirements are shown in the scanned image and photograph. You should be reasonably comfortable with computer installation in order to effectively use this product. This supports NTSC only.

What it does

If you have a need to view and control your TV from a remote location with suitable broadband access, this should do that job. The key here is that it is interactive, you end up controlling your TV across the planet or across the room, remotely. Please study carefully the artwork below.

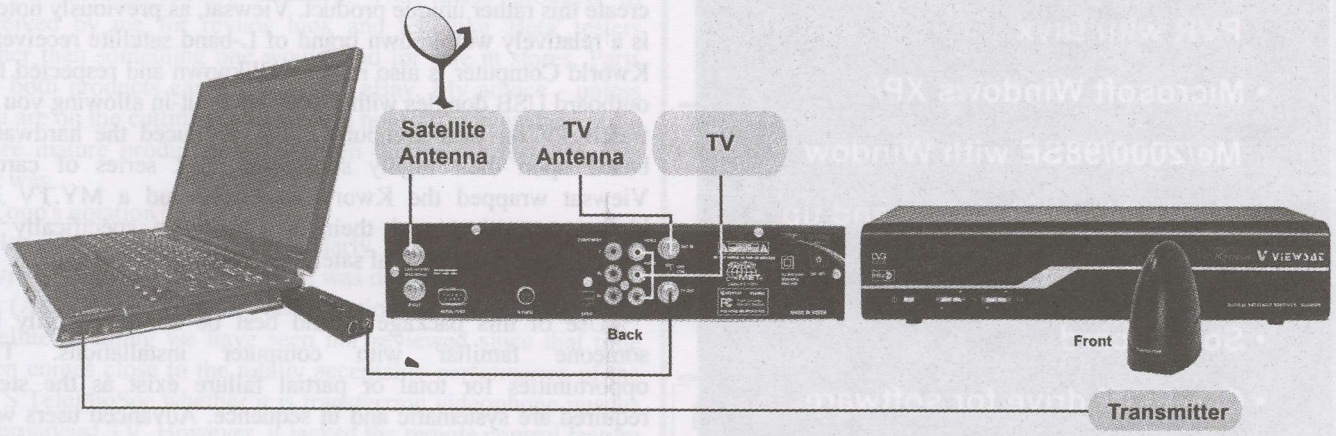
Viewsat VSTV-U1000

In this version, there are two models (see above) and this is about the external card version only . Unlike the VSTV-H1000

VIEWSAT TV Anywhere Installation Guide VSTV-U1000

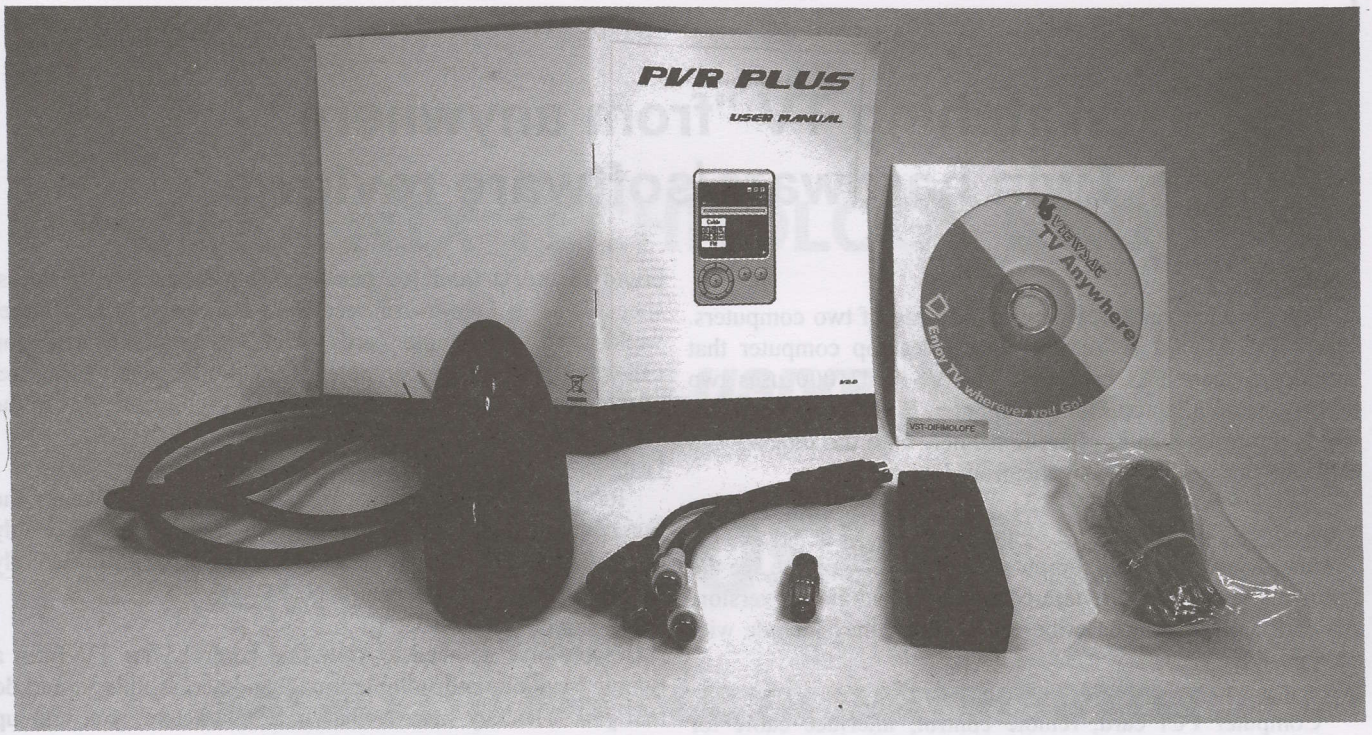
Easy to set up

Step 1. Insert VSTV CD-ROM.
Step 2. Install IR Blaster driver by selecting 'install IR Blaster'.
Step 3. Connect IR Blaster to USB port. (For the detail of 1 and 2, please see IR Blaster manual)
Step 4. Install Kworld USB Capture device.
(on Windows XP, the device will be automatically detected and its driver will install from CD)
Step 5. Refer picture as below to connect your PC and your Viewsat set-top box.
Step 6. Install vsTVStationUSB_SetUp.exe.
Step 7. Install VSTV Player in any desktop or laptop wherever you go;
you enjoy watching VSTV Anywhere with broadband internet connection.



Twin Reviews by Tim Alderman

There are many promises on the web that for $29 or $129 or $229 your broadband web connection can access virtually unlimited television. We were given two such packages from a firm called Viewsat for our review. Buyer beware. (Tim@electron.org)



VIEWSAT

Minimum system requirements

- PC with Pentium processor: 90MHz minimum recommended for TV watching, 733MHz PIII for SoftPVR with MPEG,1.8Gigahertz for SoftPVR with Divx
- Microsoft Windows XP/ Me/2000/98SE with Window Media Player 9 series and up
- Free PCI slot
- Sound card
- CD- ROM drive for software installation

model previously described, this card version supports both PAL and NTSC.

What it does

Like the first model, this is a package that extracts television from a TV set at one location, converts it to a data stream compatible with Internet, and then makes it available to a distant location - whether the next room or next continent. Moreover, it includes an interactive function - from the distant second-location the user can by remote control change channels or manage DVD or tape players (with some additional software support).

What it is

The PVR-TV 300U TV tuner box USB external card (called a 'dongle' in the trade), USB extension cable for connection to your computer, USB interface IR blaster (transmitter) and CD ROM based software are included. There is a printed manual and interconnection instructions. The software 'PVR PLUS' also allows your computer to record and edit video from the dongle.

History

Three consumer electronic manufacturers collaborated to create this rather unique product. Viewsat, as previously noted, is a relatively well known brand of L-band satellite receivers. Kworld Computer is also rather well known and respected for outboard USB dongles with TV tuners built-in allowing you to watch TV on your computer. They produced the hardware, based upon their highly successful PVR series of cards. Viewsat wrapped the Kworld hardware and a MY.TV IR blaster transmitter and their own software specifically to control their own brand of satellite receiver.

Use

Use of this package should best be attempted only by someone familiar with computer installations. The opportunities for total or partial failure exist as the steps required are systematic and in sequence. Advanced users will doubtless find other applications beyond those which the folks at Viewsat either envisioned or describe.

Reviewer's opinion

Chapter 1 : PVR PLUS Software Functions

When using PVR PLUS, There are four different functions to choose from. Picture below is an example of how the interface looks like and a short description of each function.

- **TVR :** TVR turns your PC into a full-featured video recorder.
- **MPEG Encoder :** MPEG Encoder converts AVI files into MPEG format.
- **Video Editor :** Video Editor makes editing MPEG video files easy.
- **Burn DVD :** Burn DVD creates VCD, SVCD and DVD that can be played on a PC or DVD player.

Based upon my knowledge of remote computing, both of these products rely heavily on having healthy (256 kbps and better) internet connections and each is software driven. Watching television, via stream video, can be disconcerting in that no normal consumer Internet connection is totally reliable unless an (expensive) dedicated path is available. These products are (both) designed for use with the Viewsat brand of satellite equipment. Yet the VSTV-U1000 dongle appears to be more of a capture card for generic use, and the instructions caution against installing with standard Windows drivers. Generic instructions with the MY.TV IR blaster appear to have been thrown into the box as there was no receiver which the instructions specify included. Thus these products as received by me for review look and feel like 'Beta' testers rather than something one would find for sale in stores. Parts for both products can be found on eBay. My advice - unless you are on the cutting edge, I would hold off purchasing until a more mature product that has been thoroughly tested comes my way.

Coop's notation

In SF#137 and more particularly SF#138, we reviewed a device called TelePhoSee which was designed to work through the (Australian) Global Touch Solutions package using ipstar satellite. Nothing we have seen nor reviewed since that time even comes close to the totally acceptable performance of the GTS TelePhoSee whether it is transferring videophone images or broadcast TV. However, it lacked the remote control feature of the Viewsat products - perhaps now resolved. These products are primarily after the same 'quality not important' market as the Slingbox device (SF#132) - none of which can compensate for poor web connections (as the TV2Me does).

Call this antenna test 'over'

Our 7.2m SatFACTS 'big antenna' needs 4 dB minimum for the USA

Every satellite enthusiast dreams about 'DX reception' (from a distant point from which normal reception is not possible) and we are no different than you. Well, almost no different; we have a 7.2m (23.6') to go searching for "out of boresight' signals. This project began two years ago when a local pub/hotel asked us if we were interested in 'an old satellite antenna' hidden behind their building. This large structure date back to the C-band pioneering era in New Zealand when perhaps 100 of these Kiwi-built antennas were installed at motels, hotels and pubs to import AFRTS, CNN, even ESPN back when they were free to air in analogue from the 174-180E cluster of satellites. Eventually there were Australian signals as well, on Ku-band from the initial Aussat birds, and while a few of these 7 metre monsters were redirected and modified with a Ku-band feed, most struggled on until the late 80s still bringing in half transponder width USA origin signals. All of this came to a conclusion when encryption came to AFRTS and the world began its transition to digital. A pub with an appropriate sporting event could, they say, attract hundreds of people and thousands of extra dollars in liquid-refreshment sales for a single sporting event so the NZ$20,000 to $30,000 installed price tags while huge were often good business investments..

The creators of these dishes, an enterprising crew from Motueka (South Island) were heavy on 'stout' (as in strongly built) if not on precision. Surface tolerances were always a problem (SF#123 - American Samoa survivor antenna) and the method of making the dish point at the desired satellite never quite perfected. There are azimuth over elevation mounts (each adjustment is done individually), polar mounts and a half dozen more. This dish relied upon a series of back support metal pipes to keep it stable (not moving around in even a modest breeze) and each time the dish was peaked on the existing or a new satellite, all of the back support pipes had to be "loosened-off" while you did your best to adjust the single elevation pipe as well as the rotating rear support hub for azimuth. The dish did not lend itself to smooth, "vernier" movement - rather it would "jump" sometimes an inch or more at a time in elevation and azimuth when even a 1/10th of an inch change was critical to peaking the reception.

Moreover, the surface accuracy depending upon the skill of the last guy who assembled it could be atrocious - where the dish surface should be within 4mm or so the same from surface to feed centre, some were so badly assembled that 4" errors (!) were common.

A University of Auckland Orbitron 7m mesh surfaced dish installed some 13 years ago by Kiwi pioneer Tony Dunnett actually produced analogue reception from then-existing USA domestic boresight satellites. Not good (see SF#6 - February 1995) but you watch the video and hear the (noisy) sound. Since that day, we have aspired to at least duplicate those results. At about the same time an 15m dish (now THAT is a whopper!) installed near Wellington was receiving cable-quality images from several USA birds by the

Dehnert (left) and friend with 10m Johnston Atoll project; see "C-Band Remembered" excerpt, p. 31.

predecessor to today's Telstra-Clear cable TV (in Wellington and Christchurch); Kiwi Cable. Our reports, in gritty detail, appearing in a now ex-publication 'Coop's Technology Digest' (CTD) after visiting the site extensively caused quite a fracas. TVNZ came unglued, distraught that with a sufficient sized dish USA-direct reception was not only possible but of good quality. TVNZ immediately rushed to friends in Parliament to have such program importation declared illegal - before Kiwi Cable could connect more than a couple of hundred homes. The cable company was next sued by just-starting SKY TV over which one had legal contract rights to ESPN and cable lost, leaving the 15m monster quite useless.

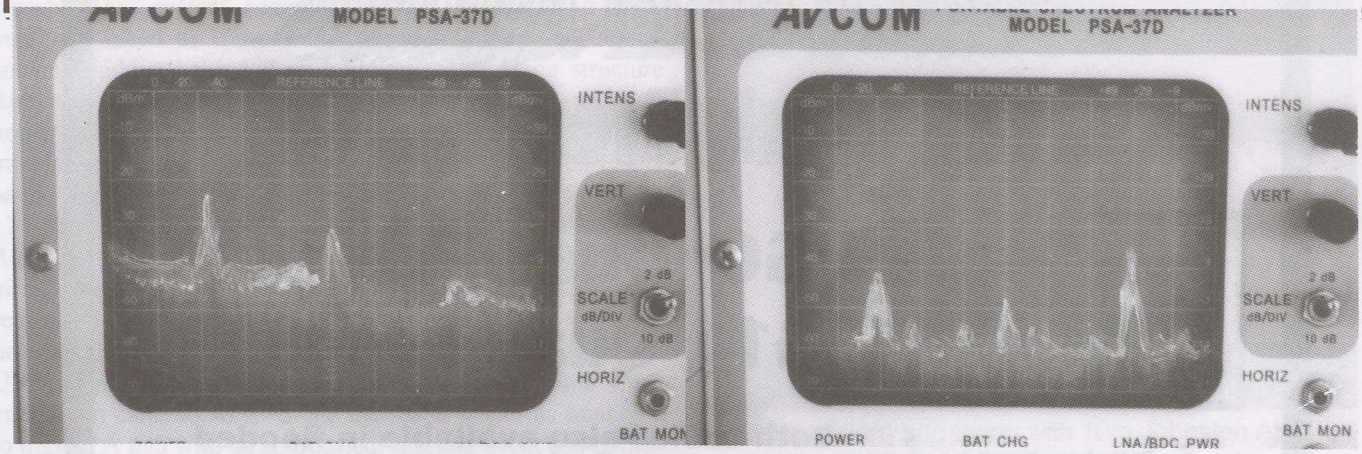
So the history of BIG dishes in New Zealand is quite complex, and filled with political and business intrigue. We did not ever expect a mere 7.2m to equal the results of the 15, but even privately watchable (within the Cooper household) images from some USA services would make the project worthwhile. Alas, it was not to be.

January 19, 2007; USA resident Doug Dehnert, who owned and operated USS Maspro in the 80s, arrived for a five week visit. He instantly wanted to "play" with the 7.2m. And so he did - using skills which during the late 80s and early 90s installed more than two-dozen 11 to 15 metre dishes throughout the Pacific and Asia - each finding when completed USA domestic signals as far west as Guam and Korea, as far south as Kwajalein and Tahiti. There is no substitute for experience and innate skill - and Dehnert had both going for him.

First he modified the elevation and azimuth moving mechanisms - getting both down to one-nut-turn at a time, possibly under a tenth of a degree. Next he went through the existing high priced Seavey (brand) feed and Norsat (brand) LNBs and came to some logical (for him) conclusions. The Seavey, all $1,500 worth of it (more than the dish cost us!)

Satellite	Location	# Analogue on bird	# Analogue identified	Best in Level	Notes
Galaxy 10	123W	3	2	Movie Channel 4060H	
Galaxy 14	125W	14	7	Super Station WGN 3960H	Best of all satellites
Galaxy 27	129W	1	1	Feeds 4120H	
AMC 11	131W	5	2	TMC East 4040V	
AMC	139W	0	1 digital	Alaskan Govt.	Only digital noted

No signals found from 127W, 133W, 135W and 137W



We have 'accentuated' these two images - from the AVCOM PSA37D analyser to make up for the bright sunlight reflecting from the screen. In the 2 dB per division range, span set to approximately 100 MHz, these analogue services from USA Galaxy 14 at 125W (our elevation - 14.4 degrees) being perhaps 3 dB shy of suitable (watchable if not perfect) USA domestic signals. Our monitoring period ran for a week to verify the consistency of the reception (it is) and time of day variations (see text).

disappeared and much to everyone's surprise but his, a Chaparral dual pole feed was substituted. The f/d on the 7.2m is .42, that means the feed and LNBs sit waaay out in front of the dish and only the Chaparral (think what you will of a Taylor Howard designed anything) was the only one suitable.

Then he went signal hunting - each USA satellite from 139W to 120W, both polarities, one nut turn at a time. Connected to an AVCOM spectrum analyser, Doug patiently sat under the dish out of the sun (front cover) while our John Taylor turned the nuts as they swept first in azimuth and then changing the elevation setting, again in the opposite direction. From our vantage point, the LOS (line of sight) to the American satellite belt is an almost straight line running east by west. Elevation changes are a tiny amount between birds, azimuth, because we are off to the side and "down under", always less than the 2 degree spacing between America's satellites. In other words, they "bunch up" for our viewing like a line of closely spaced dominoes. Doug did better than anything we had previously been able to accomplish, but then that is why decades ago he got the HUGE bucks for being in Korea or Guam or wherever finding signals which very few even believed were possible. In the April release of "C-Band Remembered" he recalls how a US Airforce Base Commander in South Korea was so impressed that his bases now had live American television that when he learned Dehnert was certified to fly high performance aircraft, he sat Doug down at a flight simulator for a day and then the two of them took a high performance F16 up for a two hour "fun ride." Not very many of us have ever had the opportunity to leave the end of the runway and pour on the fuel sending a fighter such as the F16 straight up to 35,000 feet in well under a minute. The wonders of being a satellite guru!

Back closer to earth, in fact at our 80 metre above sea level location, Dehnert added between 3 and 4 dB of off-satellite signal to the best we had been able to accomplish on our own. Alas, still not good enough - hanging right on the edge for a few very attractive analogue (albeit scrambled but hey - that is merely a box sourced in America, to cure!) services - such as the super "independent" stations WGN and Ted Turner's Atlanta WTBS. Close, oh so close, but unfortunately for our several year effort, well - anyone know where there is a 13m kicking around?

The results

Back a decade-plus when Kiwi Cable's monster dish was producing useful signals from then operating American satellites boresighted on the state of Kansas, the "official word" around TVNZ was something like, "They have found a bit of fortuitous reception and were darned lucky to have their antenna in the right location." Subsequent tests (and resolvable pictures and sound) at Auckland University with a 7m Orbitron, and our own most recent tests with a 7.2m Kiwi built antenna, convinces us this is not true - the results in American Samoa and tests run in Fiji (not reported at length here) verify this. All it really takes is a suitable sized antenna - whether that is 13m or 15m or even 18m is a sidelight to the challenge.

Polarisation skew (shift) is an interesting artefact of such tests. We found that there as no significant difference between the various satellites intercepted, whether the transponder was vertical or horizontal. However, the actual transponders found and measured were without logic - two or three in a row (40

MHz spacing) on one polarity would be identified, followed by several that were simply not there - at all. Dehnert believes the signals we do receive are being scattered off of the satellite's structure, not actually a side lobe of a beam that points at Kansas. We also found improved signals (by a dB or more) at various repeatable times of day - such as when twilight was closing in on the path from say 125W and our location. Others (with much larger antennas in locations such as Ecuador) have found similar "predictable enhancements" or "signal fades" that appear as if ruled by a master clock someplace up there in space. In fact, even a geostationary bird has a small amount of 'wobble' in a 24 hour period and if Dehnert's 'bird scattering' thesis is correct, that 'wobble' could explain the variations. It is important to note that each satellite design has its own internal-external shape and mass with no shortage of outboard metallic surfaces (such as the solar collection array) that could provide the scattering tool that places a thin film of signals even 11,000 km 'off of boresight'.

End of story?

Not quite. Coming up in the April SatFACTS (#152) is a most extraordinary installer's report originating in west-Africa. Here are a few enticing clues. A 13m C-band antenna is a monster but the same effective capture area at Ku band requires 'only' a 4.3m structure (i.e. 13m at C-band and 4.3m at Ku provide same effective gain in dB). This would have to be a very (very!) good Ku 4.3m antenna, one with surface accuracies and mount stability to maintain proper boresight bird pointing in a normal (windy) environment. There are such antennas, of course, and they are exceedingly expensive.

This installer has found a 4.3m Ku band antenna source boasting a claimed gain of 51.92 dB (11.8 GHz) with a 3 dB beamwidth of 0.417 degrees. He has also found something else - quality European Astra reception thousands of miles outside of the satellite's boresight and normal coverage. Think of being in Western Samoa finding Optus C1 and you have the general picture here. Out of boresight pioneering reception is not dead afterall!

Well, maybe *next* time?

Will the REAL interactive service please raise their hand?

Interactive; a word. The definition based upon The Concise Oxford Dictionary, page 617:

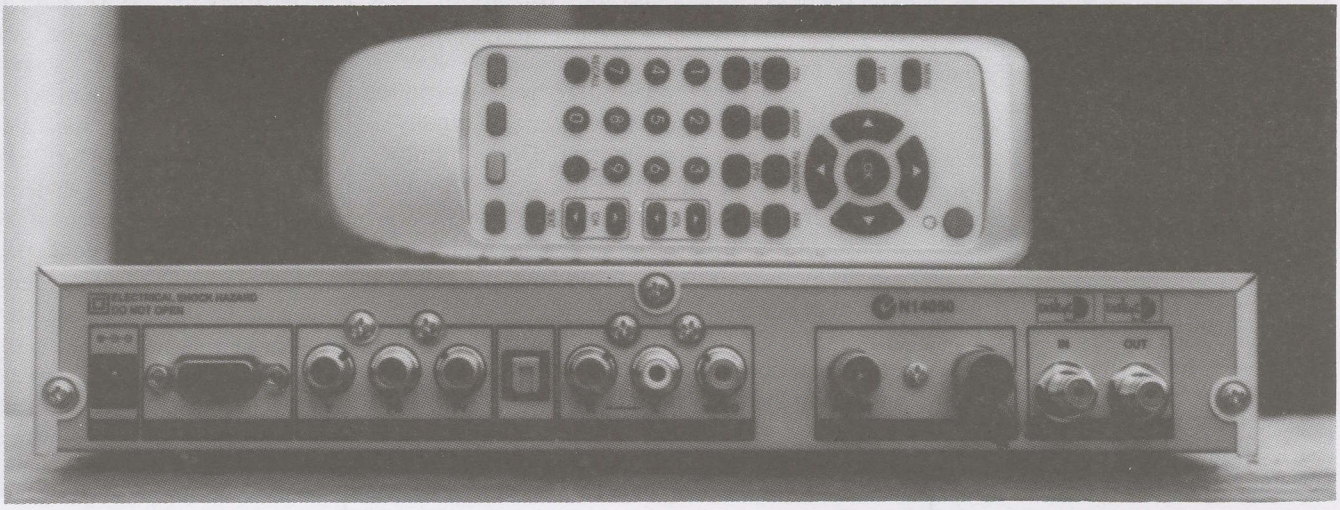
"*Interactive*/adjective: 1) reciprocally active, active upon or influencing each other. 2. (of a computer or other electronic device) allowing *a two-way flow of information* between it and a user, responding to the user's input. Interactively: adverb."

When Freeview was first proposed, even before it was called by that name, virtually all of the literature that flowed from the original founders at TVNZ wrote of, around and about "*interactive*" - the adjective. An adjective is "a word or phrase naming an attribute related to a noun to modify it or describe it". Television is a noun, "a system for reproducing on a screen visual images transmitted (usually with sound) by radio signals". Therefore, "*interactive television*" becomes a system for reproducing on a screen visual images ... allowing a *two-way flow* of information between it and a user, (in response to) the user's input."

The remote control for a television receiver allows the user to change channels, adjust levels of sound and images. Could such a TV therefore be called 'interactive'? The user sends a "reciprocally active" command and the TV set "responds to the user's input".

A stretch of what "interactive television" should be? Perhaps, but how then might you describe the SKY NZ or Foxtel or Aussat services which take their version of "interactive" a step further by providing a two-way flow of information not merely between remote and receiver but

Study the ports (Zinwell Freeview 7500): Left to right, (1) 12V dc socket (external power supply required), (2) RS232, (3) component output (3 x RCA), (4) optical audio output, (5) A-V output (3 x RCA), (6) TV (modulated) out and terrestrial antenna (in), (7) LNB(f) satellite antenna in, and loop through out. Interactive? See text.



directly back to their individual facilities by including a telephone jack/socket supported with suitable software within the receiver. Can any type of television service be "*interactive*" lacking a system providing "*a two-way flow of information*" between the viewer and the service provider? If the answer to that is 'no', does it not follow that any service calling itself "interactive" without that function be deemed a misrepresentation ("represented wrongly, give a false or misleading account or idea of...")?

A spokesman for Zinwell t tells SatFACTS:

"T*he Freeview specification for DVB* (terrestrial and satellite) *does not call for a telephone interface modem. Zinwell however manufactures and supplies STB units incorporating phone interface modems for systems requiring such a feature.*"

OK - so the new STBs for Freeview have a form of "interactive" which apparently was self-defined by a planning staff at TVNZ (before there was a consortium which now includes CanWest as well). The remote control for the Zinwell 7500, for example, through the complex MHEG-5 menu, allows users to leave normal broadcast TV channel service (initially TVOne, TV2, TV3, C4, Maori) to search for "supplemental" (defined as, "a thing or part added to remedy deficiencies ... a part added to provide additional information") auxiliary ("that gives help") information. Perhaps what we need to do here is think of EPG as the digital version of Teletext and accept that 25 years after British Ceefax was launched, technology has now replaced a text-based display with snippets of video and images - on demand. And "they call it 'interactive' television."

The content for TVNZ's contribution has yet to be seen but insiders report it will include weather, news, sports, cooking/ recipe, gardening, veterinary .... and the list goes on. If this sounds seriously like what even the most rudimentary web surfer can locate in a flash from millions of sites world-wide - well, we thought so as well. Of course the content will not be *two-way* interactive and like Teletext, the updates (old material updated by new) will be at the whim of the providers.

As our Zinwell mentor explains, "*The approved receivers have increased memory capacity to address these requirements.*" Translation? The interactive material will be on stream and loaded into the receiver's memory bin, ready to access with a stroke or two on the appropriate remote control button; another way of explaining that the "interactive portion" for all of this is between the consortium approved STB and the remote control user - storage is archived in the receiver (it is apparently not live off the satellite) and stays put until updated.

Is this all she wrote?

OK, so we have either been mislead or we allowed our imaginations and prior knowledge of what "interactive" means to send us down a dead-end trail.

It is important to remember the following:

1/ All approved and non-approved STBs are digital data flow in and analogue out;

2/ All television sets now out there are analogue only with a tiny exception of high end sets with HDMI interfacing. Fortunately, none of the STBs provide HDMI output so the hypesters behind "Freeview" cannot yet claim, with any accuracy, that their's is a high definition service. Which leaves them with hyping the hell out of those other magic words: "digital" and "interactive" of which it is neither.

The truth here is difficult for the broadcasters to swallow and almost impossible for those who design, distribute and retail 16:9 screens to accept. That 42"/1066mm screen is NOT the final TV set most people will buy. And it will be 2010 or after before the digital that begins at the broadcaster (much of which is in fact analogue converted to digital) can be seamlessly connected through satellite or terrestrial transmitters to a digital processing receiver. Consumers enamoured with their wide-screen receivers have, in fact, not seen the real thing - *yet*. If you now

And the hype goes on ...

Steve Browning is General Manager for Freeview Limited. Late in January he released an internal memo we recite here on page 2, noting that, *"the service will launch in April"* (April 6th had been frequently mentioned). Now in early March a new memo in which he says "*Freeview will launch in early May (on satellite)*". We are elsewhere told that SKY NZ is to begin some or total parallel feeds, adding horizontal to their present vertical, "sometime in May." The rationale for Freeview waiting until SKY is on horizontal is of course overwhelming - you align an LNB once for horizontal and instantly Freeview and SKY are on one polarity. Browning goes on in his March memo, perhaps stepping into water higher than his gum boots. He writes, under the heading "What is digital TV?" the following:

"New Zealanders will be able to watch their favourite programmes in crystal clear, high resolution, digital quality for free ... it exists to provide the very best in high resolution... . Freeview approved products also include the ability to access interactive TV content."

High resolution? Ooops. *Now* they have relabeled 625/576 effective line "standard *definition*" television as "high *resolution*".

Back to the dictionary:

"Resolution - separation into components, decomposition."

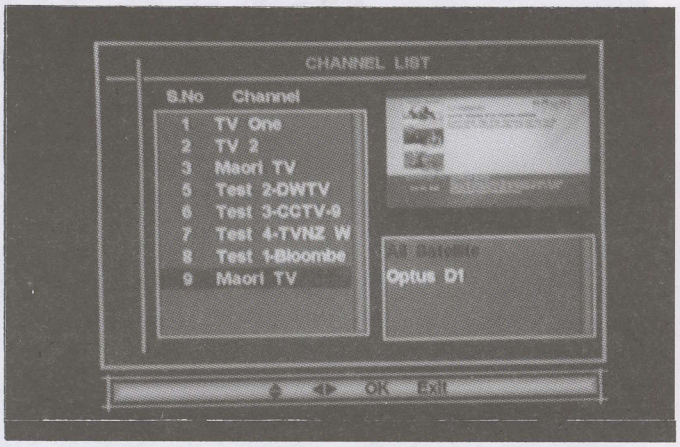
Is this an attempt to crawl in under the flap of a circus tent to get a "free" ride in the world of consumer confusion? Is "resolution" intended to be a sneaky way of planting the misrepresentation of "definition" - as in high definition (HD) television?

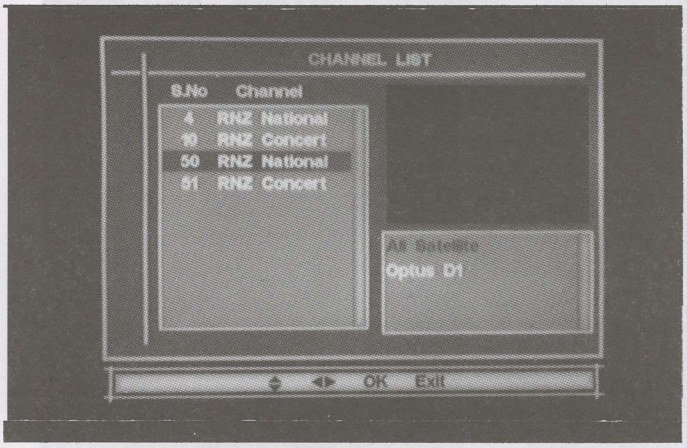
Once again to the woodshed dictionary:

"Definition - The degree of distinction in outline of an object or image (especially of an image produced by a lens or shown in a photograph or on a cinema or television screen)."

Mr Browning states, "*...the very best in high resolution*" overlooking the fact that 625 line PAL, whether transmitted as analogue or digital, ends up being 576 active lines maximum. "*The very best?*" If Freeview's initial offering is "*the very best*" we can ever anticipate in New Zealand, does that mean TVNZ has determined they will never improve their image quality beyond 576 lines "resolution?" Do distributor and retailer 'partners' in Freeview properly understand that importing for resale sets capable of more than 576 active lines of display will never see such an image except from the next generation of DVD players - and perhaps competitor SKY? Perhaps Mr Browning could attend the coming NAB convention in America and study the real "high resolution" images on display there.

And perhaps he could also stop misusing the term, "*interactive TV*", as well.





Freeview pre-launch tests: Optus D1, 12.483Hz, Sr 22.500, FEC 3/4. Quoting Freeview General Manager Steve Browning, "*the test channels Deustche Welle, CCTV9 and Bloomberg (on) D1, they may not survive beyond FreeView's launch.*" Images from Zinwell 7500 receiver provided to SatFACTS for test.

appreciate how confusing all of this might be to a consumer, remember that every DVD player in consumer hands and all of those billions of DVD discs are also not yet HDTV - simply because there are no HDMI equipped players to connect to HDMI equipped receivers and more important - the DVDs now available are SD (standard definition), not HD (high definition). .

Sometime in the next decade, everyone who is now purchasing DVDs, DVD players, wide-screen TV sets will be forced to consider the final step - to true all-digital-high definition. Obsolescence is built in to every item now being sold. *On purpose.*

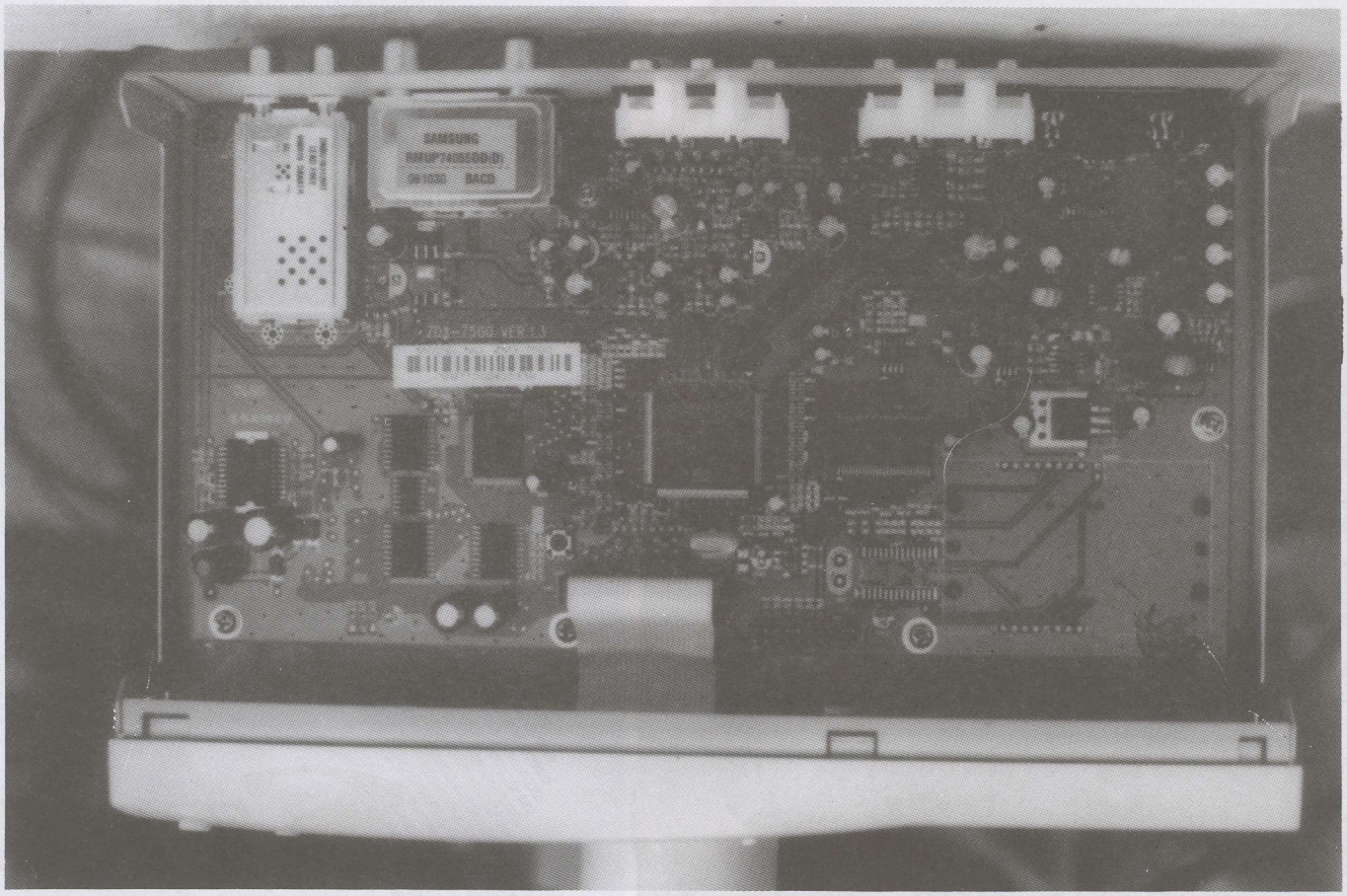
So that is *not* all she wrote. There is more, ahead. Even in the STB arena. Here's one example.

Telecom + Consortium 2008 effort

Mr Browning's ("the very best") proclamations not withstanding, most of us realise there is something better than 576 active line "resolution." SKY NZ has announced their plans to deliver "high definition" movie and sports through ADSL2+ broadband "early in 2008". With D2's launch later in the year, SKY will also have the additional transponder bandwidth to deliver HD (that means "high definition" and it usually involves something more than 700 lines of active video - still not "the very best" but getting closer to the 1,100 line point all the time).

Skirting around the issue of SD versus HD, the consortium has elected to partner with NZ Telecom, also "early in 2008" with the telephone company to distribute a new yet to be seen

Interior of Zinwell 7500 Freeviw FTA receiver with EPG, MHEG-5 unique regionalisation software.



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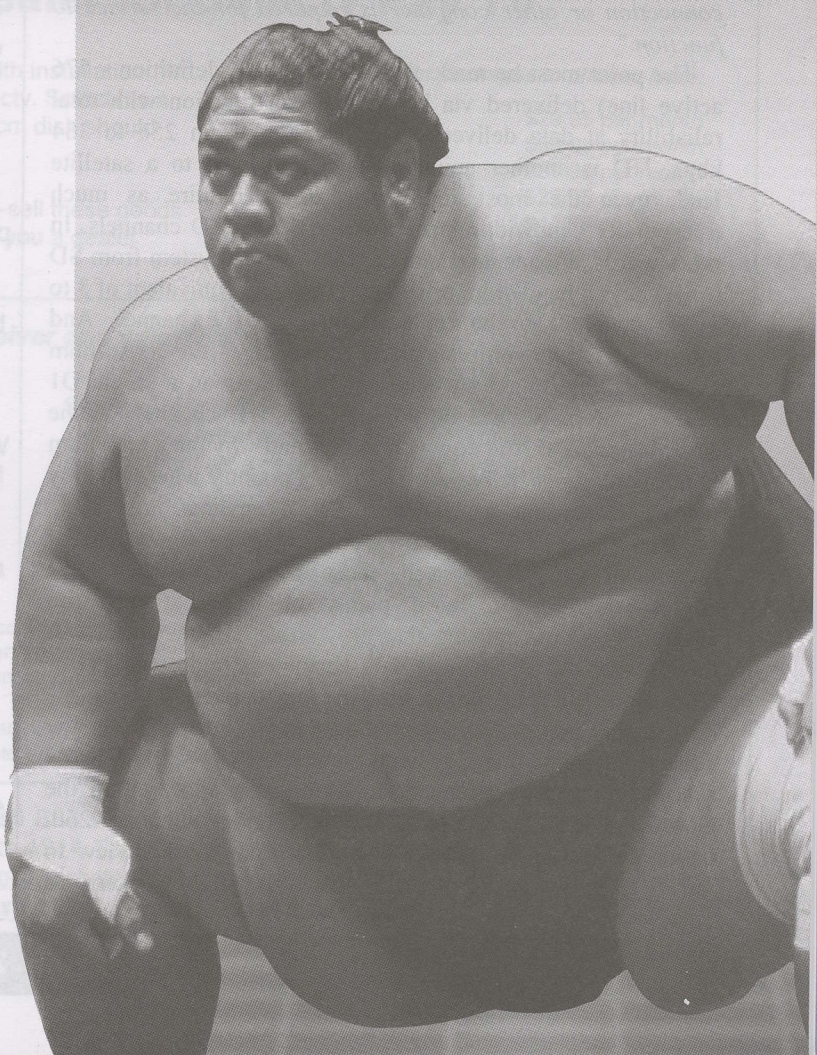


(or perhaps built) new generation of STB which they state will have built-in Freeview (FTA), and, suitable software including a modem connection for receiving via ADSL2+ "high definition" television. Telecom's promise to be involved in this project must at this stage be taken with some scepticism given their long track record of announcing projects, even starting them, and then backing out (for example: They spent $75,000,000 in a number of Auckland suburbs installing 750 MHz bandwidth cable television and then with only 8 hours notice shut the entire project down and disposed of the system at ten cents on a dollar pricing). Still, we must at least consider the possibility Telecom will stick with this one long enough to bring product to market. About which.

"*There is (much) more to IPTV than adding a telephone modem. Regarding the projected Telecom plus consortium service for web sourced movies, the receiver design's central feature must be the OSD functionality appropriate to address IP protocols for downloading (major) films for streaming or recording into memory.*"

That's from our Zinwell guru. IPTV stands for 'internet protocol television' and it means that as long as a suitable broadband(width) reliable telephone line connection exists between the user and the origination point, the software "language" of the transmission system must be matched to, mated with, the software built-into the STB.

"*Zinwell manufactures and supplies STB units incorporating phone interface modems for use in systems requiring such functions. This includes two new IPTV models scheduled for release in April* (2007). *Both models are 'wireless connected' to the internet data modem so the receiver can be placed in (for example) the living lounge room with no cabling beyond that point required; the wireless allows commands to be sent to the IPTV STB from throughout the home. The receiver's primary control is a standard TV remote unit, no external connection or other computer is required for the service to function.*"

The point must be made that SD (standard definition - 576 active line) delivered via broadband can function with total reliability at data delivery speeds ranging from 256 to 384 kbps. HD is another animal. When translated to a satellite feed, even the most recent algorithms require as much transponder bandwidth space as from 3 to 5 SD channels. In other words, anyone upgrading a transmission system from SD to HD pays a bandwidth price - and loses the equivalent of 3 to 5 SD channels to be replaced by one HD channel. And transponder bandwidth is a fixed commodity - the consortium as an example might squeeze in 18 services on a single D1 transponder in SD but only 6 or fewer HD channels in the same bandwidth. And now you understand why the consortium is not wild about delivering HD into a country where nobody owns a HD receiver (or HD capable STB) anyhow.

But via the ADSL2+ (or some other configuration) of broadband telephone - well, those guys at Telecom have source-bandwidth to burn; plenty of it. What they are struggling with is making that fat-width available not just at their server but all the way to a customer's home and PC or STB. And collecting money for what they deliver.

Telecom may be of the opinion that neither SKY nor the consortium (nor the Freeview terrestrial service) will be successful; a quite strong editorial opinion appeared in the New Zealand NBR (National Business Review) January 26th under the headline, "How long will it take for Freeview to fail?". The essence of their analysis revolved around

SO - what is an "Smart IP(TV) Box"?

This is NOT the box which Telecom will be unveiling in 12 months but it does represent this year's version of next year's technology. The features follow.

Web surfing: Surfs web on TV set

My Favourite Web Pages: PC Sync (play videos/photos/music stored in PC or NB); plug and play; no AP software installed.

TV Portals: Indexed internet radio with themed photos slide show; video sharing with recommendation; categorise recommended websites in all aspects (e.g. sports, news, travel, maps, cooking, gardening, music, photos, language ... etc.); Web based TV mail; Web based game; Supports instant communication software, such as MSN or Skype, to display instant messages and/or capture live video.

Home Media Centre: Plays video/photos.music from USB mass storage devices such as portable hard disc drive, pen drive, smart card reader, digital camera, digital camcorder; Skype phone, and web camera and various USB peripherals support in approved list.

Wired and wireless connection.

Smart IP box compliments all kinds of visual display.

General Specifications:

Processing units: CPU with 1 GHz

Video decoder: WMV family, MPEG-1, MPEG-2, MPEG-4 family including MPEG-4, DviX, Svid, H.264; Real video family.

Audio decoder: WMA family, MPEG family especially MP-3, Real Audio family.

Photo:

JPEG, GIF family, PNG, BMP.

Interfaces:

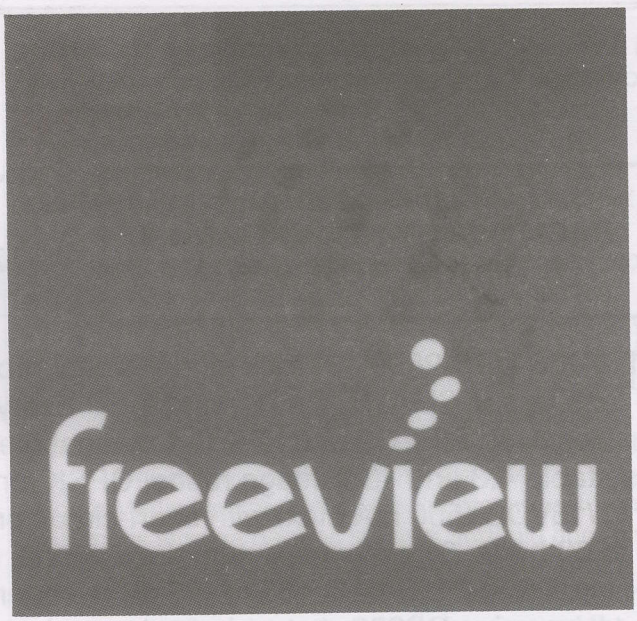
Composite video out with CA connector; S-Video out with 4-pins Mini-DIN connector; RGB out with D-sub 15 pin connector; HDMI out; Baseband L/R Audio out with two RCA connectors; Baseband L/R with 3.5mm phone jack; Microphone with 3.5mm phone jack; Ethernet with RJ-45; 4 ports USB.

...

And a "Smart PCTV"?

The preceding description involves a STB type of product, something placed near a television receiver to allow the user to do more than watch terrestrial (or satellite) television. It is a web-accessing box with built-in protocols (as above) which reflect the status of internet at the time of design as well as the ability to interact (there's that *"interactive"* word again!) with a myriad of digital devices (example: digital camera). Why not take the next step - build these features into a television set? Zinwell, in April, will be releasing just such a device - four models (S3250, S3740, S4250 and S4770 - the first two digits reflect the 16:9 aspect ratio screen size in inches [S4250 is 42" or 1066mm]). Their initial market thrust is the USA and the three "smaller" size screens have 768 active lines of resolution while the 47"/1194mm monster-set has up to 1080 lines of image resolution. All models have HDMI input(s), function with a power source of 100 to 240V AC, 50/60 Hz. For all they do, L-band satellite direct does not seem to be available.

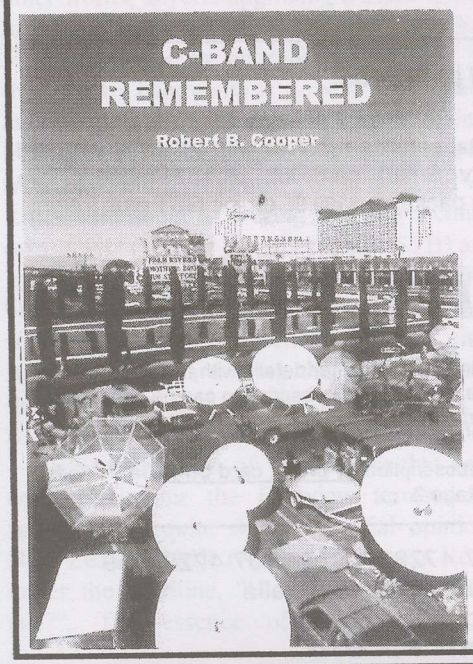
Source: Zinwell Corporation, 6F 512 Yuan Shan Road, Chung Ho City, 235, Taipei Hisien, Taiwan
www.zinwell.com.tw



The box (the band across the middle is a bright, trademark-specified red variation of something called Pantone) and the now consortium-owned official trademark. About which note: even the first letter ("f") is lower case - as is the "v" in the middle. The original owner of the trade name promptly went out to buy a fast fishing boat with his loot.

government subsidies and the money (they charge) is being poured into Freeview (and Maori TV) under the umbrella of "retaining free to view television." In their analysis, the BBC free to air service is held out to be the 'Holy Grail' of all television, but unattainable here because this is a country with 1/12th the population of the mother land. The report is written primarily with anti-government-policy bias rather than offering any new views or facts which would persuade a non-believer to suddenly become a convert. It maintains that 'Freeview will fail in 2 to 3 years when the public realises that hundreds of millions of dollars are being spent to prop up a system that never should have started'. Unsaid, that all free to air television (via satellite or terrestrial transmitters) is approaching 'past use by date', that technology has superseded its contribution to the New Zealand lifestyle, and the reader can only come to the conclusion that SKY NZ will ultimately be the only survivor; guaranteed to delight the disciples of Rupert Murdoch.

Naysaying is a tradition of New Zealand life and politics. There are any number of technical reasons why Freeview might fail, several of which are mentioned in this report. That mistakes in judgement might have preceded the technical launch of Freeview is a given. That any of them cannot be corrected, or that we may well have overestimated their importance to that 60% of the population which to date has not seen the road to glory paved with SKY NZ's good intentions is also a given. NBR's approach has nothing to do with the technical errors in judgement, only focusing on the alleged political mistakes of allowing Freeview to happen - at all. It believes some percentage of New Zealanders will never - ever - agree to pay a monthly fee to watch television but leaves unanswered whether these people will either all die listening to their iPODs and reading the newspaper, or, rise up in political revolt demanding a return to television as it was in the 1980s.



C-Band Remembered

In December 1979, by the best historical studies, there were fewer than 200 home C-band dishes in operation world-wide. By the end of 1985 - more than 3,000,000. Here are the stories of the 'pioneers' who brought first-time television to the PNG, the Caribbean, rural South America, Tahiti and thousands of locations from the Arctic Circle to Sri Lanka.

This 224 page book was written by these same pioneers (Mark Long, Clyde Washburn, Bob Behar, Lindsey Jorgensen) and includes 32 pages of photographs, mostly in colour, of the early trials and successes of taking backyard C-Band American dishes world-wide. This book is being first-released at SBE2007 in Atlanta April 18-21 and will be available by mail to SatFACTS readers in very limited quantities (order now!) late in May. See the ordering form on page 32, in this issue.

Satellite Interference Filters

Eliminate out-of-band interference at your C-band receive antenna! Available for all international bands.

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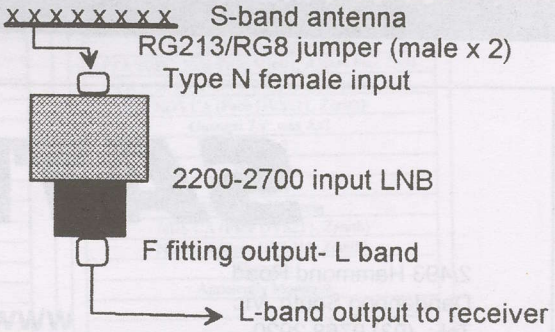
Input design range is 2300 - 2700 MHz
Input fitting is type 'N' female to mate with typical S-band type 'N' female antenna fitting
(**Output** fitting is type F [female] for RG6 connection to your L-band receiver)
(**S-band** terrestrial 2400-2484.5 falls into your L-band analogue [or digital] receiver from 1250 to 1333.5 MHz)



Typical parameters at 14V DC powered from L-band receiver: 50 dB gain, 0.4 dB noise figure (28K).

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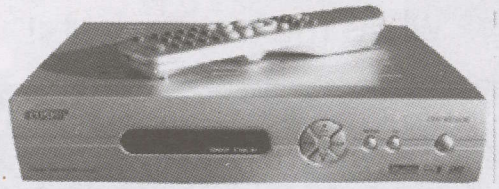

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Twin tuners,
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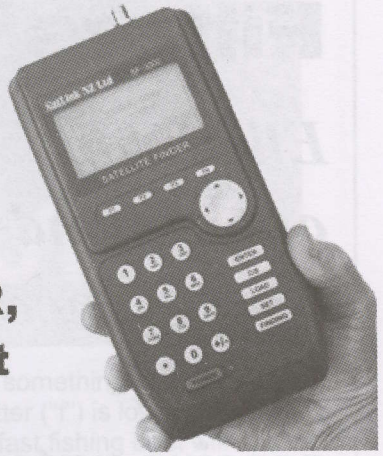

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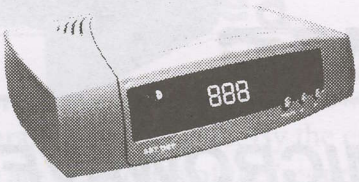

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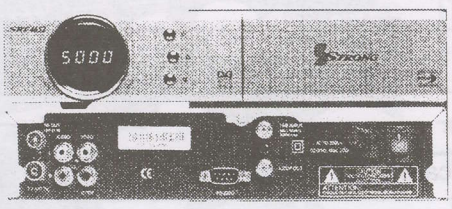

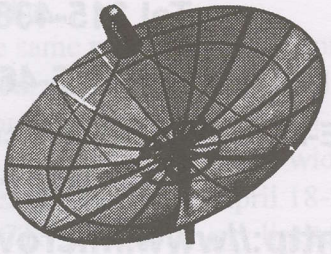

Where Else Can Your Needs Be Met

SatFACTS Pacific/Asian MPEG-2 Digital Watch: 15 March, 2007

Bird	Service	RF/IF &Polarity	# Program Channels	FEC	Msym	Receivers and Errata
Thcm5/78.5	SkyChAust	3695/1455H	up to 3	3/4	5(.000)	CA (#1, 3); FTA audio #2
	ANT Greece	3672/1478H	1 TV	3/4	13(.333)	Late July 04: room for more (FTA)
	TARBS ME mux	3640/1510H	12TV, 12 radio	2/3	28(.066)	CA + 23FTA(A1TV, IRB3, Visjon Norge,Pakistan)
	Ch Nepal	3626/1524V	1	3/4	15(.556)	New 03/03; FTA
	Mahar mux	3600/1550H	11TV, 1 rad	3/4	26(.667)	Thai + Indian services; FTA inc. Vibe TV, Sindh TV
	RR Sat mux	3551/1600H	8TV,10 radio	3/4	13(.333)	3TV, 5radio inc. Hellas TV Greece FTA
	TVK Cambodia	3448/1702H	1TV	1/2	6(.312)	**FTA**
	TARBS/Th5	3480/1670H	12 TV+radio	2/3	26(.667)	**3FTA**: TV5, VTV4, ATN Bangla
	Thai Global	3425/1725V	up to 7?	2/3	27(.500)	FTA (reaches SE Australia)
InSat 2E/83	**ETV mux**	4005/1145V	6+ TV	3/4	27(.000)	Several ETV now here; wide beam
-	**Hyd Dig 2E**	3910/1240V	1	3/4	5(.000)	SCPC, OK E. Aust. wide beam
	Kairali TV	3699/1451V	1	3/4	3(.184)	SCPC, OK E. Aust wide beam
	Indian mux	3643/1507V	3	3/4	19(.531)	corrections 12/02
	Sky Bangla	3430/1720V	1TV	3/4	6(.000)	New - November 2002
NSS6/95E	Ant Pac (Greek)	11.104H-Australia	1 TV	3/4	2(.800)	Now CA; was 11.083H
As2/100.5E	**Guangdong TV**	4075/1075H	1TV + radio	3/4	6(.000)	July 04: FTA
	Euro Bouqt	4000/1150H	5TV, 19 radio	3/4	28(.125)	FTA TV + radio; Russia,Port,Spain, Italy/Euro Bqr
	SatLink	3960/1190H	3TV	3/4	27(.500)	**Real Madrid** (V769, A770) English **FTA**
	Reuters News	3905/1245H	1TV	3/4	4(.000)	Was 3923H; sometimes **FTA**
	WorldNet	3880/1270H	4+/18radio	1/2	20(.400)	FTA; multiple audio services V2360, A2320
	APTN Asia	3799/1351H	1	3/4	5(.632)	Sometimes **FTA**; also 3895Vt
	Reuters/Sing	3775/1375H	1	3/4	5(.631)	**FTA** & CA
	Macau MUX	4148/1002V	5TV	3/4	11(.850)	5 chs TV, FTA, some tests
	Dubai MUX	4020/1430V	4+, radio	3/4	27(.500)	FTA ; Dubai Sports Ch some English, soccer-
	Russian/Israel	3832/1318V	up to 4 video	3/4	7(.271)	Two Israel, two Russian (REN-TV)
	ArabSat#2	3820/1330V	8+ video?	3/4	27.5	New 107-06; 10 FTA here
	Trace TV	3792/1358V	1	3/4	2(.400)	new here Dec 2004; Euro-French music videos
	BYU-TV	3767/1383V	1 + 20 audio	1/2	6(.530)	Increased coverage; great variety audio chs(03-05)
	3-ch miniMUX	3752/1398V	up to 3	3/4	5(.640)	Sun-TV, Surya TV, KTV (FTA)
	Saudi TV1	3660/1490V	7+/tests	3/4	27(.500)	FTA MCPC; Yemen, MBC EUROsport tests
Express2/103E	**Various-tests**	3675/1475R	2	3/4	4(.340)	Now loaded from 96.5E; svrl below 3900 all RHC
As3S/105E	**Chinese regionals**	3671/1471V	2	3/4	8(.932)	New 07-06; Yanbian, Jilin Satellite TV
	CETV digital	3680/1470H	1+ TV	3/4	26(.670)	replaces analogue same freq; V33, A32
	Zee bouquet	3700/1450V	10TV	3/4	27(.500)	Now SECA 2 CA (10-04); Radio Aust. Eng. A2011
	Ch News Asia	3706/1444H	1TV (+)	3/4	6(.000)	English + V1160, A1120; 525, 625 versions
	Azio TV	3716/1434H	1TV (+)	3/4	7(.000)	Was parallel to 3640Hz analogue (now gone)
	BTV World	3725/1425V	1TV	3/4	4(.450)	
	TVB 8	3729/1421H	1TV	3/4	13(.650)	
	Zee Movies	3732/1418V	3TV	3/4	6(.500)	Conax CA, all Hindi films
	TV One	3739/1411V	1TV	3/4	2(.8934	Also reported 3.333, ¾ October 2005
	SAB TV	3743/2407V	1TV	3/4	3(.300)	SAB may no longer here here; moved to NSS-6?
	Fashion TV	3747/1403V	1TV	3/4	2(.625)	new frequency October 2005
	AAJ-TV	3750/1400V	1TV	3/4	2(.820)	New April 2005; English, urdu
	Arirang TV	3755/1395V	1	7/8	4(.418)	FTA SCPC; New PIDs V3601, A3606 June 2003
	Now TV +	3760/1390H	up to 10TV	7/8	26(.000)	CA + 10 **FTA**; DW, TV5; Al Jazeera English
	Star TV	3780/1370V	7(+)TV	3/4	28(.100)	NDS CA (Pace DVS211, Zenith)
	GXTV	3806/1344V	1TV + 3 radio	3/4	4(.420)	Guangxi TV; was As2
	Shaanxi TV	3813/1337V	1TV + 2 radio	3/4	4(.420)	Was As2
	Anhui TV	3820/1330V	1TV + 2 radio	3/4	4(.420)	Was As2
	Jiangsu TV	3827/1330V	1TV + 2 radio	3/4	4(.420)	Was As2
	HLITV	3834/1316V	1TV	3/4	4(.420)	Was As2; HeiLong
	Star TV	3840/1310H	7(+) TV	7/8	26(.850)	NDS CA (Pace DVS211, Zenith)
	Star TV	3860/1290V	5(+)TV	3/4	27(500)	NDS CA (Pace DVS211, Zenith)
	Dragon TV	3886/1264V	1 TV	3/4	4(.800)	Shanghai
	Shaandong	3895/1255V	1TV + 6 radio	3/4	6(.813)	Apparently Mongolia
	CCTV1	3904/1246V	1TV, 1 radio	7/8	4(.420)	
	Jilin TV	3914/1236V	1TV + 2 radio	3/4	4(.420)	
	Star TV	3920/1230H	4+ TV	7/8	26(.850)	
	CNNI	3960/1190H	8TV, 1 radio	3/4	27(500)	PowVu CA; new SR Apr 29; CNN radio **FTA**
	StarTV	3980/1170V	6+TV	3/4	28(.100)	NDS CA; Star News India **FTA** VPID 514, APID 648
	Star TV	4000/1150H	8(+)TV	7/8	26(.850)	NDS CA w/ **4(Chinese) FTA**
	Sahara digital	4020/1130V	8TV, 1 radio	3/4	27(.250)	New Sr September 2004
	Hubei TV	4035/1115H	1TV + 2 radio	3/4	4(.420)	Was As2
	Tianjin TV	4046/1104V	1TV + 2 radio	3/4	5(.950)	new December 2004
	Sichuan TV	4051/1099H	1TV + 1 radio	3/4	4(.420)	Was As2
	Qinghai TV	4067/1083H	1TV + 2 radio	3/4	4(.420)	Was As2
	Hunan TV	4082/1068H	1TV + 1 radio	3/4	4(.420)	Was As2
	Fashion/HK-Asia	4088/1062H	1TV	3/4	2(.626)	New July 2005
	Pakistani TV	4091/1059V	4TV, 1 radio	3/4	9(.330)	new Sr, channels, April 2006
	Sun TV	4095/1055H	1	3/4	5(.554)	"History Channel" - SCPC, some English
	PTV National	4106//1044V	1TV, 1 radio	3/4	3(.333)	
	TVB8 Mux	4111/1040H	4 TV	3/4	13(.650)	MATV Ch Movies now Irdeto 1
	Indus News	4115/1035V	1	3/4	3(.331)	Hindi (+ "Plus"); day parts
	CCTV bqt	4129/1021H	4 TV, 4 radio	3/4	13(.240)	moved from 4115
	Zee Bqt #2	4140/1010V	8(+) TV	3/4	27(.500)	Now SECA 2 CA (10-04); 1 occ. FTA (varies)
	Henan TV	4166/984V	1TV + 8 radio	3/4	4(.420)	Was As2
	Fujian TV	4180/970V	1TV + 2 radio	3/4	4(.420)	Was As2
	Jiangxi TV	4187/963V	1TV + 2 radio	3/4	4(.420)	Was As2
	Liaoning TV	4194/956V	1TV + 2 radio	3/4	4(.420)	Was As2
Cak1/107.5	Indovision (S-band)	2.535, 2.565, 2.595, 2.625, 2.655	33(+) TV	7/8	20(.000)	NDS CA using RCA/Thomson. Pace IRDs; **2.535 has 2 FTA.** Bird now inclined.
T'Kom/108E	**IndoBqt**	3460/1690H	up to 6	3/4	28(.000)	also 3586H/17.500, 3496H/19.615
C2M/113E	**TPI**	4185/965V	1	3/4	6(.700)	FTA SCPA; NT/NC only
	Anteve	4144/1006V	1	3/4	6(.510)	change from 4055V; FTA SCPC
	Kabelvision Mux	4080/1070H	7+ TV	7/8	28(.125)	also try 3500H, 27.000, 3/4; strong NZ
	Indostar	4074/1076V	1	3/4	6(.500)	New (but probably temporary) 07-06
	SCTV	3934/1216H	1	3/4	6(.620)	**FTA,** may not be active full time
	Indo MUX	3880/1270H	3+ TV	7/8	28(.121)	**FTA;** Sr change 01/03; erratic
	TVRI	3765/1385H	1TV	3/4	5(.555)	bounces btwn FTA and CA; unreliable (12-04)

Bird	Service	RF/IF & Polarity	# Program Channels	FEC	Msym
	SCTV	3726/1424V	1TV	3/4	6(.620)
	RCTI	3473/1677H	2	3/4	8(.000)
As4/122E	**CCTV MCPC**	3820/1330V	8	3/4	27(.500)
Jc3/128	Miracle Net	3996/1154V	3 up to 6	5/6	22(.000)
	Asian bqt	3960/1190V	up to 8	7/8	30(.000)
Ap6134E	Multiple	4140/1010V	up to 8	7/8	27(.500)
T18/138	**Tests**	3460/1690V	8	3/4	30(.000)
Am3/140	**STS +**	3731/1419R	1	3/4	3(.200)
Jc2A 154	**BYU-TV**	3915/1245V	1+ 20 languages	3/4	4(.166) (?)
MeasSs2	**Astro Mux**	11.602H	up to 17TV	3/4	41(.500)
B3/152	**7 Cent. Feed**	12.310H	1TV	3/4	5(.100)
	AuroraBiz	12.407V	4 TV, 10 radio	2/3	30(.000)
	UBI	12.425V	up to 13 TV + radio	3/4	22(.500)
	Globecast 2	12.525V	13 TV, 8 radio	2/3	30(.000)
	Globecast (feeds)	12.550-.555V	1TV	¾ & 2/3	6(.110/.670)
	Globecast	12.564V/T13	2+ TV	2/3	30(.000)
	UBI	12.613H/T14L	11+TV	3/4	22(.500)
	UBI	12.640H/T14U	11+TV	3/4	22(.500)
	Globecast 1	12.658V/T7	14TV, 15 radio	2/3	30(.000)
	UBI	12.674H/T15L	11+TV	3/4	22(.500)
	UBI	12.701H/T15U	11+TV	3/4	22(.500)
	WA ABC	12.702V	1 TV, 1 radio	7/8	14(.288)
	WA SBS	12.720V	4TV, 2 radio	5/6	12(.600)
	WA GWN/WIN	12.738V	2TV	7/8	14(.295)
C1/156E	Aurora	12.324V/T1U			
	Pay TV	12.365V/T2	11TV, 2 radio	3/4	27(.800)
	Aurora Home	12.407V/T3	5 TV, 13 radio	2/3	30(.000)
	Pay-TV	12.447V/T4	5TV, 4 data	3/4	27(.800)
	Pay TV	12.487V/T5	3+ TV, data	3/4	27(.800)
	Aurora 2	12.527V/T6	7TV, 20 radio	3/4	30(.000)
	Pay-TV	12.567V/T7	10 TV	3/4	27(.800)
	Pay-TV	12.607V/T8	10 TV	3/4	27(.800)
	Pay-TV	12.647V/T9	10 TV	3/4	27(.800)
	Pay-TV	12.692V/T10L	6TV, 27 radio	1/2	28(.650)
	Aurora MUX	12.728V/T10U	4TV, 17 radio	1/2	24(.450)
	Austar	12.305H/T11	6TV, 24 data	3/4	30(.000)
	Pay-TV	12.358H/T12	10 TV	3/4	27(.800)
	Pay-TV	12.398H/T13	10 TV	3/4	27(.800)
	Pay-TV	12.438H/T14	6TV, 3 data	3/4	27(.800)
	Pay-TV	12.478H/T15	10 TV	3/4	27(.800)
	Pay-TV	12.518H/T16	10 TV	3/4	27(.800)
	Pay-TV	12.558H/T17	10 TV	3/4	27(.800)
	Pay TV	12.598H/T18	10 TV	3/4	27(.800)
	Pay-TV	12.638H/T19	10TV, 30 radio	3/4	27(.800)
	Pay TV	12.688H/T20	11TV	3/4	27(.800)
D1/160E	Sky NZ test	12.394V	TV +	3/4	22(.500)
	SBS SE	12.451H	TV+	5/6	12(.600)
	Sky NZ	12.519V	TV+	3/4	22(500)
	Sky NZ test	12.519H	TV+	3/4	22(.500)
	ABC NSW	12.514H	TV	7/8	14(.294)
	ABC South	12.532H	TV	7/8	14(.294)
	ABC Northern	12.550H	TV	7/8	14(.294)
	ABC Western	12.577H	TV	7/8	14(.294)
	ABC Victoria	12.595H	TV	7/8	14(.294)
	ABC Qld	12.613H	TV	7/8	14(.294)
	Southern Cross	12.744V	TV + 1 radio	3/4	5(.100)
	Sky NZ Test	12.644V	TV		
I8/166E	SelecTV	12.526H	8+TV	3/4	28(.800)
	CCTV	12.557H	3+TV	3/4	13(.240)
	ABS-CBN	12.575H	4+TV, 4+ radio	2/3	13(.845)
	MYSAT	12.646H	up to 8 TV	3/4	28(.066)
	JEDI/TVB	12.686H	11+ TV	3/4	28(.126)
	PnGlobal Aust	12.726H	6+TV	3/4	28.(066)
	ABC A-P	4180/970H	2TV, 2 radio	3/4	27(.500)
	Hallmark Asia	4166/984H	1 TV	3/4	6(.620)
	Disney Pac	4140/1010H	typ 6 TV	5/6	28(.125)
	Hwazen TV	4130/1020H	1 TV		
	NHK Joho	4060/1090H	7TV, 1 radio	1/2	16(.180)
	FOX Mux	4040/1110V	up to 5TV	7/8	26(.470)
	NET +	4121/1029V	1 TV	3/4	4(.774)
	ESPN USA	4020/1130H	8+TV, data	3/4	26(.470)
	Discovery	3980/1170H	8 typ.	3/4	27(.690)
	CalBqt/Pas8	3940/1210H	up to 3+ FTA	7/8	27(.690)
	CNBC HK	3900/1250H	up to 7TV	3/4	27(.500)
	FilipinoMUX	3880/1270V	up to 8TV+radio	5/6	28(.694)
	CCTV Mux	3829/1321H	up to 4 + 1 radio	3/4	13(.240)
	TVBS-N	3836/1314V	**1FTA**, 4+ CA	3/4	17(.500)
	EMTV PNG	3808/1342V	1 + 2 radio	3/4	5(.632)
	CNNI	3780/1370H	3, up to 5 TV	3/4	25(.000)
	Discovery Asia	3764/1386V	Up to 6 TV	3/4	19(.850)
	MTV	3740/1410H	8	2/3	27(.500)
I2/169E	WA Mux Pv	12.281V	3+ TV, radio	2/3	27(.500)
	Ariang TV	12.401V	1TV	3/4	4(.400)
	ABS-CBN	12.575H	4TV, 2 radio		13(.845)
	Test mux	12.715H	6+ TV	2/3	30(.000)
	TARBS feeds	4090V/1060V	9TV + radio	3/4	21(.000)
	BBC SCPC	3986/1164H	1TV	1/2	5(.700)
	Middle East	3836/1314V	4 typ	3/4	13(.331)

Receivers and Errata

was on 4048V; New Caledonia, parts of Australia
FTA SCPC;or, 3774H, 6.520, ¾ (June 06)
8 FTA here; also try 4020V, 4060V
PowerVu; some FTA (Ch. 1 & 3)
CA & **FTA** NTSC: Japan, Taiwan
(ApStar 6: also 4180V same #s; some analogue also)
also try 3660/3540VVt, Sr 30.000, 3/4; some FTA
North beam; also try 3875R, 12.475, 1/2
Strong NZ & Australia; may now be 1/2, 6.525
Aust East beam - **3 FTA** + 14 CA
Was B1; moved June 2006; concerns B1 failures
differs from 12.407 C1; **tune ch FTA; NZ+Au**
Now Irdetio V2
NZ + Au, FTA + Mcrypt CA
occ feeds, NZ + Au; recently 12.553V
AMTV, Healing only FTA svcs now here
High performance beam; not NZ; new CA 07-06
High performance beam; not NZ; new CA 07-06
NZ + Au (Mcrypt, PowVu capable)
High performancebeam; not NZ; new CA 07-06
High performance beam; not NZ; new CA 07-06
ABC WA tests, FTA
SBS, radio tests WA FTA
Irdeto V2 CA, tests (GWN, WIN)
not currently in use
Tests; SBS-NDS CA, others FTA when here
NZ (90cm) + Australia (**Only C1 svc left on NZ**)
Australia NA only (leakage to Norfolk, New Cal)
Australia NA only (leakage); 9-Net x 3 widescreen
Arrow radio (still here), tone FTA
Pay-per-view movies; CA
Pay-per-view movies; CA
Pay-per-view movies; CA
ABC for Foxtel/Austar; previously 12.288V
changes September 2005
Austar inter; **Expo FTA**
NDS CA + Mcrypt; CA
CA, subscriptions available Australia, Norfolk
Sky News active; 'Help x 2' **FTA**
CA, subscriptions avail Au, Nrflk; **TVSN FTA**
CA, subscriptions available Australia, Norfolk
"Home"CA, subscription available Australia, Nrflk
CA, subscriptions available Australia, Norfolk
CA, subscription available Australia, Norfolk
CA, subscription available Australia, Norfolk
+ 12.420V, Au + NZ beam
+12.469H/Qld, 12.487H/South,
+12.546V, 12.581V, 12.608V, 12.644V: NZ only
+12.546H: NZ only
Australia only
Australia only
Australia only
Australia only
Australia only
Australia only
Australia only
+12.671V, 12.707V, 12.734V: NZ only
&12.286, 12.326; **FTA** prev..526 V10112, A1012
FTA-Australia
CA -Australia
FTA V=5340, A=790 -Australia
June 2002-Irdeto-2 CA - Australia
Some **FTA**-Australia
Dateline west; also east PAS2, 3901V
Temporary FTA (January 2007)
PowVu CA
PowVu CA & **FTA**; sub available-changes 05-06
was PAS-2, previously 3992Vt; **feeds FTA**
NET25 + FTA; new PIDS April '03; reload
PowVu CA; ch 11 DCP-CCP bootload; audio **FTA**
PowVu/CA (some audio **FTA**)
PowVu CA & **FTA (EWTN + CBS +TBN +)**
NDS CA (6 channels); one test card occ FTA
Myx FTA V1960, A1920 + radio FTA
PowVu FTA, replaces PAS-2 svc
CCTV cross pole; new SR 04-06
PowVu CA
PowerVu; some audio **FTA**
PowerVu; Asian MUX; new parameters Nov '03
8 **MTV China FTA V289, A290;** rest CA
PowVu CA, WIN, ABC NT, SBS; status unknown
Test - may not stay permanently
Temp **FTA**; subs Aust 011-800-2270-0722
initially with 6 NTSC colour bars
Occ **FTA** (Chile +); BIG power reduction Nov 03
BBC World moved here January 2005
Subscriptions available; Strong Technology

Bird	Service	RF/IF & Polarity	# Program Channels	FEC	Msym
(PAS2/169E)	**Adventists.tv**	4040/1010H	1	2/3	5(.900)
	Feeds	3868/1182H	1	2/3	6(.620)
	Feeds	3939/1211H	2 (typ NTSC)	2/3	6(.620)/7(.498)
	Cal PowVu	3901/1249H	up to 8	3/4	30(.800)
	HK bouquet	3850/1300H	up to 8	2/3	24(.900)
	Korean Bqt	3771/1379H	1	3/4	6(.510)
AMC23/172E	**Various-tests**	12.730H	up to 8	3/4	30(.000)
I804/174E	**iPSTAR**	12.619H	1	2/3	25(.220)
	Tests-NZ beam	12.646H	1	3/4	22(.418)
	RFO Poly	4027/1123R	1TV	3/4	4(.566)
I701/180E	TNTV	11.060&11.514V	9	3/4	30(.000)
	TVRFO	11.136V, 11.174V	6+TV, 3+ radio	3/4	23(.149)
	Canal+Sat	11.610H	16TV, 1 radio	3/4	30(.000)
	PBS	12.648HH	16TV possible	3/4	28(.066)
	TVNZ/BBC	4186/964RHC	1	3/4	5(.632)
	TVNZ	4178/972RHC	1	3/4	5(.632)
	AFRTS DTS	4175/975L	3 TV, 3 radio	2/3	3(.680)
	TVNZ/Aptn	4170/980RHC	1	3/4	5(.632)
	Fiji Sky Pacific	4095/1055LHC	6TV + future radio	3/4	16(.505)
	Fiji Sky Pacific	4055/1095LHC	7TV + future radio	3/4	16(.505)
	TVNZ/feeds	4052/1098RHC	1	3/4	5(.632)
	TVNZ feeds	4044/1106R	1	3/4	5(.632)
	NBC to 7 Oz	3960/1190R	1	7/8	6(.447)
	TBN Mux	3927/1223R	4TV	2/3	11.(394)
	WorldNet	3886/1264R	1TV, 37 radio	3/4	25(.000)
	Ioarana	3772/1378L	1	3/4	4(.566)
	NASA TV	3854/1296R	1 TV	3/4	2(.000)
	TVNZ	3846/1304R	1	3/4	5(.632)
	NBA (Barker) Ch	3803/1347R	1	3/4	6(.111)
	USA feeds	3749/1401R	4?	?	26(.400)
NSS-5/177W	Pacific IP Data	3763/1387R	none-data	3/4	27(.500)
	RFO/Tempo	3920/1230R	1	3/4	2(893)
	BYU-TV	4185/965R	1TV, 20+ audio	1/2	6(.525)
	Australia Temp.	12.522V	8 SCPC	7/8 & **5/6**	14.294 & **12.600**
	Auckland Teleport	12.612V	New Mux 01/07	5/6	28(.989)
	iPSTAR Tests	12.691V	8 TV	5/6	17(.600)

Receivers and Errata
New December 2003; 24/7 "Hope Chs."
FTA (occ sport); also try 3863,Sr6.100
FTA-typ NTSC-occ sport, live Shuttle
PowVu CA + **FTA**(includes BBC-W 05-05)
was 4148Vt; some **FTA**
Korean MUX, reload 12-04; new Sr
Testing on NZ/East Australia beam
Tests, late May start; also 12.646H
Testing possible data links; June 2003
SE spot beam; was 4027LHC
east spot; 10TV + r each, vertical pol.
FTA 11.136 Tahitian beam, 11.174 west beam; 12/04
1+ **FTA**, MediaGd "2"; + 10.975 weaker
Testing Fiji region pay-TV (MDS) package (Oct '04)
DMV/NTL early vers. occ feeds, typ ca
DMV/NTL early vers., occ feeds, typ ca
'DTS Direct to Sailors; audio previously FTA - gone
DMV/NTL early vers. occ feeds, typically ca
Nagravision CA (> Feb 1, 2005) New PIDS
All now (including Fiji 1) CA; 7 Feb, 2005)
DMV/NTL early vers ,occ feeds, typ ca
SCPC, mixed CA and **FTA** feeds
CA, Leitch encoded
January 2006-now 4 channels, new Sr
New PIDs Dec 03 very strong NZ, Pacific
FTA SCPC; East Hemi Beam-Tahiti
24/7 live NASA - West Hemi bm (can be difficult!)
SCPC, mixed CA & **FTA**, feeds
NBA feeds - probably CA - new Nov 2003
16-QAM (not MPEG-2 compatible)
Data only but useful for dish alignment
Wallis & Futuna Island(s) service
Global beam - requires sizeable dish
Aust beam: 12.522, 538,555,574,604,**621**,**639** & **657**
NEW Sept 2006; Tuesday 8PM hobby night
CA Tests - Taiwan TV; data coming?? (NZ beam)

MPEG-2 DVB Receivers: (Data here believed accurate; we assume no responsibility for correctness!)

AV-COMM R3100. FTA, excellent sensitivity (review SF May 1998); new version Sept. '99. AV-COMM P/L, 61-2-9939-4377.
AV-COMM Tiny Tot. FTA, 12Vdc operated, palm sized, low power consumption; review SF#120. Contact # above.
Coship 3188C. Review SF#107. Blind search FTA rcvr; works well. Phoenix Technology Group (www.phoenixsatellite.com.au) (Irdeto 2 as well as FTA versions)
Coship FTA, CA, HDD. Review SF#143, state of art functions, blind search. Phoenix (above), Satlink NZ, fax 64-9-814-9447;
Divitone: "Left-handed" review SF#115; does "code key" entry. Available http://www.satmax.ws
eMTech eM-100B (FTA), eM-200B (FTA + CIx2), eM210B (FTA + 2xCI + positioner); KanSat 61-7-5484 6246 (review SF#89)
eM-150/Homecast. FTA + embedded multi-format, review SF#144. Sciteq (61-8-9409-6677) and Kristal (61-7-4728 7704)
Fortec Star Lifetime. Two versions, both blind search, code-key programmable, one X 2 CI. Review SF#119. www.aDigitaLife.com
Homecast (em-150, eM-1150, eM-2150) series of FTA, CA, HDD sate of art STBs, review SF#144. Sciteq (www.sciteq.com.au)
Humax ICRI 5400 (Z). Embedded Irdeto + 2 CAM slots; initial units had NTSC glitch, now fixed. Widely available; new software avail 04-04, SF#76.
Humax IRCI 5410 (Z). Adaptable version capable of holding multi-CA systems (SF#98, 99). Widely available; original importer Sciteq (www.sciteq.com.au).
Hyundai-TV/COM. HSS100B/G (Pacific), HSS-100C (China) FTA. Different software versions; 2.26/2.27 good performers, 3.11 and those with Nokia tuners also good; later 5.0 not good.
Hyundai HSS700. FTA, PowerVu, SCPC/MCPC. Review SF March 1999. Kristal Electronics, 61-7-4788-8902.
Hyundai HSS800CI. FTA, Irdeto (with CAM) + other CA systems, PowerVu, NTSC. Kristal Electronics, above; review SF#63.
INNOVIA IDS3088. Review SF#111. Blind search FTA receiver. High quality IRD; available Phoenix TechnologyGroup, and Satmax (http://www.satmax.ws).
ID Digital CI-24 Sensor. New August 2003; new lower noise tuner, extra sensitivity; CI Interface slot Irdeto 1 & 2; review SF#109. Sciteq 61-8-9409-6677.
KSF-570 FTA digital receiver, import; KSC-570 adds CI x 2 (no test or user results available). Asoft Limited, 64-4-234-1096
KSC-N550H2 'Premium Dual DVR' digital receiver (no test or user results available). Asoft Limited, 64 4 234 1096
MediaStar D7.5. New (May 00) single chip FTA; review June 2000 SF. MediaStar Comm. Int. 61-2-9618-5777 (www.mediastar.com.au)
MediaStar D10. FTA and Irdeto embedded CA. VG receiver; see review SF#96, August 2002. Contacts immediately above.
MultiChoice (UEC) 660. Essentially same as Australian 660, not grey market contrary to reports. Sciteq tel 61-8-9306-3738
Nokia "d-box" (V1.7X). European, FTA, may only be German language, capable of Dr. Overflow software. SF#95, p. 14.
Nokia 9200/9500. When equipped with proper software, does Aurora, originally did pay-TV services provided software has been "patched" with "Sandra" or similar program. See SF#95, p. 14, SF#96 p. 15. SatWorld 61-3-9773-9270 (www.satworld.com.au)
Pace DGT400/DVR500. Originally Galaxy (Now Foxtel+Austar). Irdeto, some FTA with difficulty (Foxtel Australia 1300-360818). UECs replaced.
Pace "Worldbox" (DSR-620 in NZ). Non-DVB compliant NDS CA including Sky NZ, no FTA; similar "Zenith" version (see SF#115, p. 15).
Phoenix 111, 222, 333 models (no longer produced): Service, backup - Phoenix Technology Group 61 3 9553 3399; www.phoenixsatellite.com.au
Pioneer TS4. Mediaguard CA (no FTA), embedded Msym, FEC, only for Canal+Satellite (AntenneCal ++687-43.81.56)
PowerVu (D9223, 9225, 9234). Non-DVB compliant MPEG-2 unless loaded with software through ESPN Boot Loader (see below). Primarily sold for proprietary CA (NHK, CMT etc). For service only - call Scientific Atlanta 61-2-9452-3388. For revision model D9850, see Scientific Atlanta (below).
PowTek. Blind Search Chinese sourced, field tests rate it highly. Source jason@aDigitaLife.com
Prosat 2102S. FTA SCPC/MCPC, NTSC/PAL, SCART + RCA. Sciteq 61-8-9306-3738.
SatCruiser DSR-101. FTA SCPC/MCPC, PowVu, NTSC/PAL. (Skyvision Australia 61-3-9888-7491, Telsat 64-6-356-2749); no longer available.)
SatCruiser DSR-201P. FTA SCPC/MCPC, PowVu, NTSC/PAL, analogue, positioner - (Skyvision - see above); no longer available.
SATWORK ST3618. Blind search FTA receiver. Fast search, problems, especially in "memory-filing" system; review SF#111. Available DMSi at tim@dmsiusa.com.
SATWORK ST3688. Blind search, 3000+ ch memory, multi-format RF modulator; improved version 3618. Review SF#113; available DMSi (above).
Scientific Atlanta D9223, D9234, D9225; Orig. PowerVu, superceded Dec 2003 by D9850. Commercial receiver, available TVO 61-2-9281-4481, John Martin
Strong Technologies SRT2620. SCPC, MCPC FTA, exc sensitivity, ease use, programming. Review SF#91 (ph. below).
Strong SRT 4600. SCPC, MCPC, PowerVu; exc graphics, ease of use, review SF#64. Strong Technologies 61-3-8795-7990.
Strong 4800. SCPC, MCPC, embedded Irdeto+ CAM slots, does code-key with additional software, Aurora. Strong Technologies 61-3-8795-7990.
Strong 4800 II. SCPC, MCPC CAM slots x 2 for Aurora +, Zee, Canal +, code key with additional software. Strong Technologies (above); review SF#103.
Strong 4890. SCPC, MCPC, 30Gb PVR, 2 CAM slots, DiSEqC 1.0, 1.2 (review SF#84), does code key with additional software; Strong Technologies, # above.
UEC Atlas/Titan (1000). New July 2003, replacing DGT400 for Austar. No SCART, L-band loop; also available Rural Electronics 61-2-6361 3636.
UEC642. Designed for Aurora (Irdeto), approved by Optus; w/new software, C-band FTA; faulty P/S. Norsat 61-8-9451-8300.
UEC660. Upgraded UEC642, used by Sky Racing Aust., Foxtel,limited FTA. (Nationwide - 61-7-3252-2947); P/S problems.
UEC700/720. Single chip Irdeto built-in design for Foxtel; unfriendly for FTA. Power supply problems, seldom sold to consumers; propensity to fall off back of trucks.
"**X" Digital**. When modified with "aftermarket" Internet softwre, does Aurora and other V-1 CA without card; review SF#119. Strong Technologies (61-3-8795-7990).

Accessories:

Aurora smart cards. MCRYPT (Irdeto V2) cards now available (Jan 2005), Sciteq 61-8-9409-6677.
PowerVu Software Upgrade: PAS-8, 4020/1130Hz, Sr 26.470, 3/4; pgm ch 11 and follow instructions (do not leave early!)
PowerVu (Pacific) **repair service**: Cable & Sat Svcs, Darius West, 61-2-9792-1421 (Email darius@cases.net.au)

WITH THE OBSERVERS

AT PRESS DEADLINE

Hills STB and MHEG-4 (page 2 here)? "4" is a digital compression algorithm Freeview has adopted for DTT (terrestrial) use; apparently a misunderstanding. And May start date for satellite? "*Kordia/BCL is unable to guarantee CanWest that the MUX will be ready for TV3 and C4 and RNZ in April*" - so it became May.

Launches: Insat 4B 10 March to 93.5E; 12 each C and Ku.

AsiaSat 2/100.5E: "Al Jazeera (English) has appeared on 3820Vt, FTA; Sr 27.500, 3/4 - 10 FTA here. " (**Josh**)

AsiaSat 3S/105.5E: "Eurosport World (inside NOW bouquet, 3760Hz; Sr 26.000, 7/8 - 10 FTA now) has been in and out of FTA recently." (**Josh**)

AsiaSat 4/122.2E: "TTV China is now on 3820Vt, Sr27.500, 3/4 - 8 FTA here), FTA." (**Josh**)

Optus B1/now moving: "east: - destination unknown)

Optus B3/152E: "On 1 March, TTN and Deepam TV (T5/12.525V, Sr 30.000, 2/3) went encrypted (Irdeto V2); contact is 1300-886-548 (www.tharisanam.tv). Indian SUN-TV spent a few days FTA in mid-February and Hungarian TV 'Duna' went from CA to FTA 1 March; perhaps temporary." (**IF**, Qld) "On 18 February Globecast removed the V2 Irdeto encryption from T7/12.657V (30.000, 2/3) although the SA (Scientific Atlanta) encryption stream remained. While this was turned off, noted 'Vision Asia 5' which began as Zee Cinema is now 'NDTV' (New Delhi TV) and is in English (VPID 1760, APID 1720). On T13/12.563H, Sr 30.000, 2/3, Globecast has added an Indian language radio channel (APID 1422) labelled as 'Tamil Radio'. (**AI**, NSW) "UBI was advertising on their info channel, 'Subscribe before February 28 and save $404.90 - 120 channels for less than $2 a day; UBI World TV 1300 400 800'. (**IF**, Qld) "On T11U, 12.452H, Sr 22.500, 3/4 UBI has replaced what was 'HUDA' (Arabic) with something simply labelled 'Ch 9' - they have a 'Ch 10' from Greece as well. (**NS**, Victoria)

Optus C1/156E: "As reported in SatFACTS #150, Al Jazeera English continues to run on 12.367V, Sr 27.800, 3/4 as an FTA service for no obvious reason." (**GH**) "On T11, 12.478H, Sr 27.800, 3/4 TVSN (VPID 1081, APID 1082) has become 16:9 widescreen making it one of a handful (ABC being the others) in the ever limited free to air set. The video resolution is quite good (720 x 576) but the dynamic compression ranges between 0.8 and 3.0 MBit/s. On T11/12.305H, Sr 30.000, 3/4 (Austar interactive MCPC), the PIDs for all channels have been changed; FTA, EXPO, is now VPID 1031, APID 1032. Channels labelled 'ASTRA' which carry only data PIDs have been added, as well as to T14/12.438H - they will be used for voting during the March 28th ASTRA Awards. (**IF**, Qld.)

Optus D1/160E: "TVNZ's 12.483Hz remains, the test second package (12.456Hz) is now gone (as they warned it would be) and strangely enough while it was testing it appeared to be NDS encrypted. So why would Freeview be testing NDS?" (**CS**, NZ)

Soapbox: "Selectv is promoting '350 movies every month for only $29.95 per month' with one month free, no contracts, no equipment rental fees (the viewer owns his or her own equipment) for '20 premium channels'. The Discovery Channel is under trial here as well; their advertising does not mention sport channels." (**Archer**) "Big W stores ('we sell for less') promoting AWA brand set top box for conversion of FTA terrestrial digital to an analogue TV receiver - A$69.84 while The Warehouse ('where everyone gets a bargain') is selling USB high definition digital TV receiver (connects to a PC USB port) for $59.99; 'Turns your HD compatible computer into a HDTV'." (**IF**, Qld) "Australia is on track to ban the sale of all incandescent family light bulbs in the next 3 years, favouring fluorescent bulbs as replacements. It is true that the current versions of fluorescent use 20% of the energy (power) as incandescent and last up to 10 times longer. They also generate significant amounts of electromagnetic radiation (interference for radio and TV reception) and as the ambient air temperature approaches 0 degrees C, the light output diminishes rapidly. Greenhouse gas emission environmentalists are calling this a victory." (**Harry T.**) "Matchmaster is touring Australia with fibre-optic MATV

Interim Freeview Testing Availability

This applies to the Zinwell ZMX 7500 receiver. From the day you read this until sometime early in April, if you tell the receiver you are in the Wellington region district the receiver will display a test version of the new electronic programme guide. If you have already told it you are someplace else, do the following:

1/ select factory default, 2/ power down, 3/ power up, 4/ reload by selecting the Wellington region. A receiver operating with some other region previously selected (*such as Auckland*) will not see the EPG tests. The (test) EPG covers TVOne, TV2 and Maori. This test will continue until early April and then be shut down in preparation for the official launch on Freeview in early May.

WITH THE OBSERVERS: Reports of new programmers, changes in established programming sources are encouraged from readers throughout the Pacific and Asian regions. Information shared here is an important tool in our ever expanding satellite TV universe. **Photos of yourself, your equipment** or off-air photos taken from your TV screen **are welcomed**. TV screen photos: If PAL or SECAM, set camera to f3.5-f5 at 1/15th second with ASA 100 film; for NTSC, change shutter speed to 1/30th. Use no flash, set camera on tripod or hold steady. Alternately submit any VHS speed, format reception directly to SatFACTS and we will photograph for you. Deadline for April 15th issue: April 4th by mail or 5PM NZT April 5th if by fax to 64-9-406-1083 or Email skyking@clear.net.nz.

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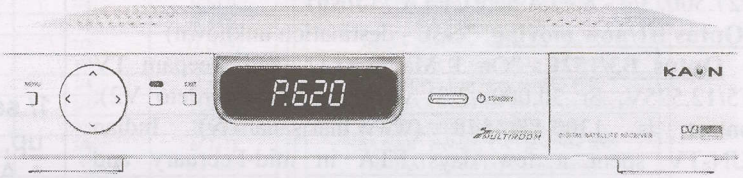

KSF-620R2 FTA MULTIROOM-2 SATELLITE RECEIVER

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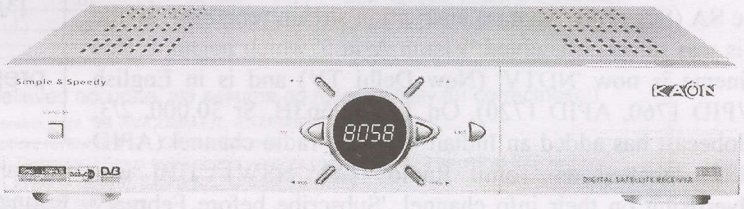
Extremely popular
Long serving model



KSF-570, KSC-570 FTA & FTA WITH CI SATELLITE RECEIVER

K200 SERIES

Small design
Rich in features

KPSF-200 12-24V DC FTA PORTABLE SATELLITE RECEIVER

PVR SERIES

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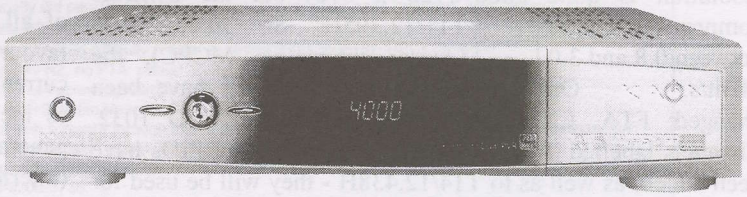
MP3 playback
USB 2.0 support for fast data transfer via PC



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Available in New Zealand through our distributors.
Please check our website www.asoft.co.nz/kaon/ for more information and current distributors.

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Phone: 644 234 1096 Fax: 644 234 1098 Email: info@asoft.co.nz
Website: www.asoft.co.nz/kaon/

These firms are available to do contract dish installs

Fiji Islands

C.B. Communications, **Sigatoka** (Ph6520227; cbcom@connect.com.fj)
Safeway Electronics Ltd, **Suva + Lautoka + all islands** (Ph 3395300/6666822; safeway@connect.com.fj)
SATSHEK Communications, **Suva** (Ph3307933; parmarbros@connect.com.fj)

New Zealand:

Tauranga TV Svcs Ltd, western **Bay of Plenty** (ethnic Ku packages) (Ph 07 578 7276; dave-tts@clear.net.nz)
Town & Country Communications, **Canterbury** (Ku systems) (027 630 534; brendon.tnc@paradise.net.nz **(*)**
Raycom, **Coromandel Peninsula/Waihi/Tairua** (B1 FTA) (Ph 07 864 8083; raycom@slingshot.co.nz)
Frontline Electronics, **Mosgiel** region (ethnic Ku packages) (Ph 03 489 4001)
Advanced Aerials, **Napier/Hawkes Bay**, comcls (Ph06835 6618/021 272 6618; advanceaerials@xtra.co.nz)
Nelson TV & Video Svcs, all **Nelson Bays** (Ph 03 548 0304; ntv@tasman.net)
Rexels AV Electronics Ltd, **Palmerston N, Manawatu, Hawke's Bay, Wanganui** (Ph 06 357 6186; rlblair@infogen.net.nz)
John Stewart, **southland** including Otago (john.s@tritec.co.nz)
The Antenna Man, **Taranaki** (Ph 06 758 1633; antenna.man@xtra.co.nz)
Quality Pics, entire **Waikaito** region (Ph 0800 007 667; maxnkay@xtra.co.nz)
Smartzone, **Wellington-Wairarapa-Palmerston N** (C+Ku) (Ph 029 289 6333; info@smartzonesystems.co.nz)
Homestead HiTech, **Wellington, Masteron-Levin** (PAS-2, B1, B3) fitzgera@ihug.co.nz)
Waipu Cable Television, **Wellsford to North Cape** (*Bluekiss*), (Ph 09 4320 973; waipucable@xtra.co.nz)

Australia Wide

Regional Outcomes (60+ locations, **all states, territories**) (03 9923 7333; installs@regionaloutcomes.com.au) (*)

New South Wales:

Woolgoola Antenna Service, **Coffs Harbour** (50km radius) (Ph 0266561889; woopaerials@iprimus.com.au)
Town & Country Antennas, 60km radius **Murwillumba/Tweeds Heads** (Ph 02 6672 8595)
Newcastle Satellite, **Newcastle + Lwr Hunter Vly** (Ph 0249614449; satellites@netcentral.com.au)
Home Satellite TV, 40km radius **Port Macquarie** (Ph 02 6584 3838; kazbah25@optusnet.com.au)
Goodcom Communications P/L, 100km radius of **Walcha** (Ph 02 6777 1044; goodcom@northnet.com.au)

Northern Territory

ALLSAT TV, **Darwin and NT**; (Ph 041 863 3720; allsat.tv@pacific.net.au)

Queensland:

Cape York Electronics, **Cooktown and "the cape"** (started 1970s) (Ph 07 40 695 252; cyectn@tpg.com.au)
Phil's Antenna Systems, 100km radius of **Hervey Bay** (C+Ku since 1996). (Ph 0741 256 273)
Rick Dalton TV & Satellite, 100km of **Kawana Waters** (C + Ku). (Ph 07 5493 4343; rick@antechtv.com.au)
Teleworks, 100km of **Cairns** (C + Ku). (Ph 0412 84115; rajvrm@aol.com)
Videotronics Mackay, **Mackay/Whitsundays** radius 200km. (Ph 07 495 575 052; sales@videotronics.com.au)

South Australia

Central Eyre Comms, **Arno Bay-Eyre Penins.** (Ph 08 8628 0203; centraleyrecomms@ozemail.com.au)

Tasmania:

.65 Electronics, **Launceston and Northern Tasmania** (Ph 03 63 330820; sales@65group.com)

Victoria:

Riviera Satellite Antenna Svcs, 100km radius **Bairnsdale** (Ph 03 5152 4884; gilhooleystv@net-tech.com.au)
Leden Communications, (100km radius) **Glengarry** (Ph 0427 745105; leden@netspace.net.au)
Geoff's Communications, 60km radius **Korumburra** (Ph 0408 582010; gwyhoon@tpg.com.au)
Foreign Satellite TVP/L, **Melbourne (region)** C+Ku since 1995 (Ph 040445509; joe12@dodo.com.au)

Solomon Islands

Satellite Solutions, **Honiara + all Solomon Islands** (since 1994) (Ph 677 25589, satsol@solomon.com.sb)

Thailand:

JSAT tv/Jon Clarke, **ex-pat community - nationwide** (Ph +661 513 5418; info@jsat.tv)

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seminars (March 19th Perth, 21st Adelaide, 23rd Melbourne, 26th Sydney, 28th Brisbane and 30th Cairns) at around A$300 for an eight hour course featuring one Australian and 7 European speakers imported out of bitter cold winter; www.matchmaster.com.au. (**CG**, Sydney) "The United States has successfully extradited (to the USA) a 44 year old Australian man who is charged with violation of US copyright laws involving software piracy. He will face the US criminal court system for his alleged creation of software programming designed to emulate existing US copyrighted materials." (**Cheryl**) "Terrestrial ABC's EPG has been only listing 'now' and 'next' but has been revised into a 3 day guide which at least assists those with PVRs!" (**David**) "Foxtel is trying to lure new installers to the fold by advertising (on Sydney FM radio) by throwing in 'free Foxtel' as a part of the employment package. The installer group running the commercials was identified as 'VSA' - is this new policy or something that has always been done?" (**Peter**) "Amusing: On the 9 Network on the morning

of February 15th when returning from an ad break the host (sitting next to Murdoch's daughter in law) announced, '*This is the Today Show being seen in Australia, New Zealand, New Guinea and some parts of Fiji on illegal satellite.*' Does he know something that the rest of us do not?" (**AI**, NSW) "Measat 3 Australia coverage - understand footprint level into Melbourne is 33 dBw, Perth 31-32 dBw. RTM1 and TV3 are SCPC and therefore lower in level (by as much as 4 dB) than a fully loaded MCPC transponder. Measat is suggesting 4.5m dishes for the 31-33 dBw signals - certainly hobbyist reception can do it with a lower reliability." (**CS**, NZ) "There is a frightening report about how the cable TV set top box world has exploded. In 2006, factory shipment of these devices hit a record 27.5 million - up from an impressive 15.6 million during 2005. The 'why' behind this explosive growth is also a surprise. Demand in China has gone through the roof like a sky rocket. Chinese cable operators are under a time deadline to convert all of their operations from analogue to digital. In 2006, 9 million of these STBs were manufactured in China to stay there - up from 2 million kept at home in 2005. Elsewhere, American and European cable systems are also being forced (by competition - not government decree) to complete their phase out of analogue. The largest sellers in North America are the high end STBs with PVR functions built-in as well as HD capability. These are the best years ever for STB manufacturers - which could affect the ability to obtain improved designs anytime soon for the now much smaller satellite version of this business." (**Larry J**) "Packed inside the Zinwell 7500 box is an information sheet promoting SATMAX NZ to make the installation; $75 plus parts." (**CB**)

BRIEF *Excerpts* from "C-BAND Remembered"

"Satellite TV - off the beaten track " (*Mark Long*):

"Unlike most satellite TV 'old-timers' my entry into the American satellite TV business came about by way of a convoluted process. My good friend Terrell McClintock had attended a Coop's satellite show (SPTS) in 1981 and was able to convince Paul Mandelstein - the publisher of The Big Dummy's Guide to CB Radio, which I had co-authored with several of my amateur radio buddies - that satellite TV was poised to become the next big thing in consumer electronics.

"Because of the success of my million-selling CB radio manual and its special British edition, Paul was in touch with a British entrepreneur on the lookout for flashy new products. Paul convinced him to spend $10,000 for a prototype satellite system, and suddenly I was in the satellite TV business.... . "

"Tom Humphries - too early to be a pioneer!" (*Tom Humphries*):

"(One of my early memorable) experiences would be during my first satellite ground station work as a newbie at Scientific Communications Inc. I had to install a cryogenic cooled paramp inside of a 15 meter dish at Wallops Island, Virginia - at the focal point! The amp weighed in about 65 pounds and when I first crawled out to the feed, the dish was parked near zenith. At this instant a sister 15 meter antenna right next door was suddenly starting its horizon to horizon run. The combination of the very much amplified noise created by being at the focal point of the dish I was inside and the drive motor from the companion antenna was a sudden burst of high volume energy which came very close to sending me and the $100,000 paramp off the feed mount and down to the ground. I have never forgotten that incident; it was in 1971 during my first tour with SCI, between periods spent at Texas Instruments."

"Cruising the Moscow geostationary arc" (*Tim Alderman*):

"...The dish was placed behind a copper facade that only echoed the cacophony of reflected TI signals, causing it to come and go, much as you experience with satellites when moving the dish; only the dish was not moving! The Unimesh 12' antenna could not have been a poorer choice, given the 0.4 F/D shallow surface. .... On the 14th floor the Communist Party had installed a special conference room and next to it hidden behind beautiful wooden panels was a room measuring 38" (under 1 meter) in width by 20' deep. Inside this room, the hotel's headend filled with various old-technology heterodyne processors for the seven off-air channels cable distributed to the 700 sleeping rooms plus the meeting rooms. The modulator I was supplied with, to add the American CNN to the cable package, was inadequate for the job to be done. To top it all off, it was a UHF modulator and the distribution system was at VHF! ..."

"Extending American TV into the Pacific - Johnston Island" (*Doug Dehnert*):

"A smiling welcoming committee shook our hands vigorously and we were led to a chamber where a fellow in Army uniform gave us a 'briefing' on life on Johnston Atoll. Nobody had bothered to warn us in advance but this 650 acre chunk of largely manmade coral and sand was the home to millions of tons of every one of the US's ex-warfare chemical weapons; a storage depot for Mustard Gas, Agent Orange, Nerve Gas and dozens more with spine tingling names. 'Inside this case is your personal gas mask' explained the Sergeant. 'In the event of an emergency, sirens will warn you to take out the mask and place it over your face like this' and he demonstrated. 'In the event there is a leak and you find yourself downwind , reach into the case where you will find three tubes. Immediately take tube A, break off the end cap and inject your buttocks. If after 5 minutes you feel blisters form on your body, repeat this with tube B. If after 5 more minutes you feel any additional blisters, repeat with the final tube - C'. Now I understood why there was no Club Med on this almost forgotten outpost. I was here because they had the money to have a 10 meter dish to receive American TV; *silly me*!"

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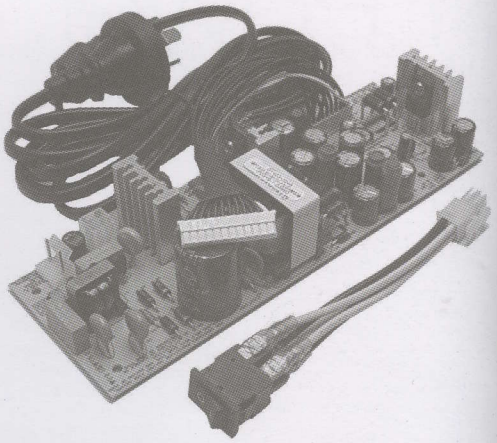

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